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FACTORS AFFECTING THE CHOICE OF MOBILE NETWORK OF CUSTOMERS IN BINH TRI THIEN MARKET

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INTRODUCTION

1. Background

The fierce competition in the marketplace poses many challenges to enterprises, requiring enterprises to invest resources for research on behaviour and consumption trends of customers. As evidenced by the successes in behavioral research, consumers' trends are Facebook, Viber media, Iflix, ... and otherwise is the failure of businesses not to catch up with the development trend of market as well as buying behavior of customers like Siemen, Nokia etc.

In the field of telecommunications, the demand for mobile information services in Vietnam in recent years has changed dramatically, especially since 2015, customers are almost satisfied with basic mobile information services, such as voice and text messaging, and have actually been interested in the multi-service field, especially the need to exploit and use Bigdata data, value-added services (VAS) and content services primarily.Therefore, the factors that influence the behavior of choosing the mobile network of customers after 2016 also changes.

Binh Tri Thien area with the market of mobile information services more than 2.4 million subscribers, its revenue is estimated at 5.2 billion VND per day. Characteristics of the market in this area is the networks of Viettel, MobiFone and Vinaphone are dominant in terms of market share in certain customer segments and localities. It is important to investigate which factors affect the decision to choose a mobile network for a customer, making a difference in the market share of operators in the customer segment and in the local area.

Based on the size and nature of the area, the author selects the topic "*Factors affecting the choice of mobile network of customers in the Binh Tri Thien area*" to do the doctoral dissertation aimed at studying customer behavior in the field of mobile communications and to answer the above questions.

2. Research objectives

Overal Objectives: Identify the factors that influence the choice of a mobile communications network and provide solutions to better

satisfy the needs of customers and promote the development of mobile information services in Binh Tri Thien area.

Specific objectives:

- Systematize the theoretical and practical aspects of the behavior and factors that affect the decision-making process of selecting a mobile customer's mobile service.

- Identify the factors that affect the perception of customers' demand for mobile services in Binh Tri Thien area.

- Identify the process and factors involved in the process of influencing the process of seeking information, evaluating the options and decision making to select mobile networks of customers in Binh Tri Thien area.

- Proposing some solutions to better satisfy customers' needs and promote the development of mobile information services in Binh Tri Thien region

3. Research Questions

1. What are the factors that help customers perceive the demand for mobile information services and their impact on customer perceptions? Is there any difference among markets?

2. How does the information search process make the decision to choose a mobile operator to provide mobile customer service?

3. How do consumers decide to choose the mobile network among the study area?

4. What factors influence the choice of mobile network of customers in Binh Tri Thien market and the impact of factors?

5. Which solutions can motivate the choice of mobile network of customers in study area?

PART 2
OVERVIEW OF RESEARCH ON FACTORS
AFFECTING THE DECISION OF MOBILE NETWORKS

With the objective of the research, the author has referenced studies on behavior of customers in the field of telecommunications in general as well as in mobile communications and found that basically the research works responding to the behavior of customers, the main research topics are alternative behavior, selection due to psychological factors, consumer behavior, satisfaction and behavior after purchase, barriers and repeat purchase behaviors.

2.1 Studies on alternative behavior and alternative behavior due to psychological factors

International Studies:

* Study on *"Factors determinants the Choice of Mobile Service Providers: Structural Equation Modeling Approach on Bangladeshi Consumers" on 2010 by* Ahasanul Haque, Sabbir Rahman, Mahbubur Radman.

* Study on *"Consumer Choice and Local NetworkEffects in Mobile Telecommunications in Turkey" on* 2012 by Karacuka, A. Nazif Catik, Justus Haucap.

* Study on *"Consumer choice behavior towards mobile phone operators in Bangladesh"* on 2011 by Md. Ashaduzzaman, S.M. Sohel Ahmed, Md. Moniruzzaman Khan.

* Study on *"Influence of socio-demographic variables on users"choice of mobile service providers in Nigerian telecommunication market"* on 2012 by Wole, Simeon Ambrose Nwone and W. Olatokun.

* Study on *"Mobile telecommunication networks choice among Ghanaians"* on 2013 by Boateng Henry và Maapa Kwame Quansah.

* Study on *"Factors influencing the people's choice of mobile telecommunication network: a case of Buru Buru shopping center"* on 2011 by Macharia, Eunice Mugure.

* Study on *"The impact of psychological barriers in influencing customers' decisions in the telecommunication sector"* on 2013 by Hussein Nssar, Goodiel Moshi and Hitoshi Mitomo.

Research in Vietnam:

* Study on *"Factors affecting choice of mobile network service provider" on 2014* by Tran Huu Ai.

* Study on *"Choice of mobi network"* on 2006 by Le Hong Nhat and Tran Thien Truc Phuong

* Study on *"Apply IPA method to evaluate quality of mobile phone service in Vietnam"* on 2012 by Le Cong Hoa và Le Chi Cong.

2.2 Research on consumption behavior

* Research of Clelia Mazzoni et al, conducted in 2007 on *"Consumer behavior in the Italian mobile telecommunication market"*.

* Study on "*Factors affecting customer experience in telecommunication services and its importance on brand equity: a study on telecommunication companies in Bangladesh" on 2013 by* Mohammad Baitul Islam and Afroja Rehan Rima.

2.3 Research on satisfaction, loyalty, barriers, and repeat buying behavior

International Research:

* Study of Junqi Lin (2012) on "*The Factors Affecting Customer Satisfaction and Behavioral Intentions in Using Mobile Telecommunication Service in Bangkok, Thailand*.

* Research on *"The effect of switching barriers on customer retention in Korean mobile telecommunication services" by* Moon Koo Kim, Jong Hyun Park on 2011.

Vietnamese studies:

* Study on *"The influence of gender and cultural characteristics on customer satisfaction of mobile telecommunication services via*

the structural equation model (SEM" on 2011 by Thai Thanh Ha and Ton Duc Sau.

* Study on *"The impact of barrier-to-customer factors on customer loyalty - Evidence from the mobile telecommunications market in Tuyen Quang" in* 2015 by Dao Trung Kien and et al.

Discussion

First, the overview of the studies has shown some factors such as product quality, price, etc or/and some technical factors such as the service area of the network, the data rate, or some internal factors such as age, culture, ... affect the choice behavior of customers, but only in each period that the researchers do. There is no study on the behavior of choosing the mobile network of customers to fully implement the process of purchasing decision process. These studies have not yet explained the relevance, transitional nature of the influence of factors on customer behavior in the stages of the process as well as the interactions among the factors in the process of receiving the need to find information, evaluate options and make purchase decisions of customers.

Second, research on the factors affecting consumer behavior in mobile communications in Vietnam is done before 2016, when Viettel, MobiFone, Vinaphone, Vietnamobile is providing basic services such as voice and text messaging and some simple value-added services such as missed call notification, callback service, voice messaging, and so on. Factors affecting the selection of networks during this period are mainly referred to as products, rates, distribution, customer care, service areas, etc., or age, culture.

From 2016, the market for mobile information services in Vietnam will be strongly transformed and operators will start to operate, exploit and provide new value-added services, especially services. content and data services. In addition to the other influencing factors analyzed by previous studies, the researcher finds that customers are beginning to pay attention to the applicability of new value-added services, content content services , the data transfer rate and capacity of the data service, the ease of use of the services (due to the diversity of services, the use is also more complex) so that the factors that affect the service Choosing a network operator that

offers new services in the behavior of customers is also changing, more diverse and more complex.

Starting from these two issues, the author finds that this is a gap in the research that local and foreign authors have not done before, and is also an opportunity for researchers to continue studying behavior of customers in the process from demand awareness to buying decision. Researching factors that affect new services in the mobile information field, and how it affects buying behavior of customers will be carefully analyzed this dissertation.

PART 3

RESEARCH RESULTS

CHAPTER 1

THEORETICAL FRAMEWORK ON FACTORS AFFECTING ALTERNATIVE DECISION OF CONSUMERS TO TELECOMMUNICATIONS SERVICES

1.1 Theoretical background of purchasing decision process of customers.

1.1.1 Concept on Consumer

According to the Law on Consumer Protection - Law No. 59/2010/QH12 of the National Assembly, *consumers are people who buy and use goods or services for the purposes of consumption and daily life of individuals, families and organizations.*

### *1.1.2* **The fundamental factors influence the decision-making process of consumers.**

Philip Kotler states that there are four basic factors that affect behavior,

Culture	Society	Personality	Psychology	Buyer
Cultural Background	Reference Groups	Age and Stages of life cycle		
		Job	Motives	
SubCulture	Family	Economic condition	Recognition	Buyer
		Life style	Knowledge	
Social Class	Social role and social status	Personality and self-awareness	Belief and Attitude.	

Source: Philip Kotler and Gary Armstrong (2012), Principles Marketing 14th Edition, Prentice Hall

1.1.3 The purchase decision process of customer.

According to Philip Kotler, to do a transaction, buyers have to go through a five-stage process: Problem Recognition, Information Search, Evaluation of alternatives, Purchase decisions, Postpurchase behavior.

| Needs Recognition | → | Information Search | → | Alternative Evaluation | → | Decision making | → | Postpruchase Behavior |
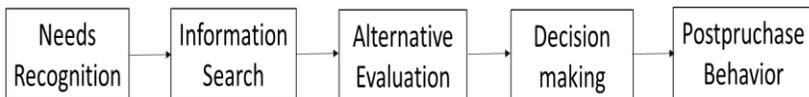
Source: Philip Kotler và Gary Armstrong (2012)

1.2 Services and Telecommunication services

- Services are actions, processes, and ways of doing things that create value for customers, satisfying customer needs and expectations (Zeithaml and Bitnet, 2000).

- Telecommunications services are services of sending, transmitting, receiving and processing information between two or more groups of users of telecommunications services, including basic services and value added services.

- Mobile communication service is the service of sending, transmitting, receiving and processing of signs, signals, data, scripts, images, sounds or other information in the form of waves transmitted by real users of telecommunications services. Available through network and mobile devices.

CHAPTER 2

RESEARCH SITES AND RESEARCH METHODOLOGY

2.1 Research sites

2.1.1 Natural condition

Binh Tri Thien consists of three provinces: Quang Binh, Quang Tri and Thua Thien Hue, located on the North Central Coast with an area of 17,780 km^2. Quang Binh has 8,000 km^2, Quang Binh 4,747 km^2 and Thua Thien Hue 5,033 km^2

2.1.2 Socio-economic situation in the study area

The economic situation in the study area is relatively stable, the economic growth rate in 2016 in Quang Binh is 4.5%/year, in Quang Tri is 6.5%/year and in Thua Thien Hue is 7.11%/year. The population in the study area until 2016 is 2,628,997 distributed in 3 cities (Dong Hoi, Dong Ha, Hue), 4 towns (Ba Don, Quang Tri, Huong Tra, Huong Thuy) and 20 districts (Quang Ninh, Le Thuy, Vinh Linh, Gio Linh, Huong Hoa, Dakrong, Cam Lo, Trieu Phong, Hai Lang, Con Co, Phong Dien, Quang Dien, A Luoi, Phu Vang, Phu Loc, Nam Dong).

2.1.3 Telecommunication services in study area

Currently, in the area of Binh Tri Thien as well as in the whole country, network operators are concentrating their investment and trading on 4 main groups of services: voice, SMS, data, Value Added Services (VAS). In each service group, operators design and deliver value added services such as call back, missed call notification (MCA), brand message (SMS) brandname, voive SMS, bigdata, content services such as mobile TV, study English, etc. Internet & data services, entertainment services, utility services, education services, news services, international services.

The results of the field survey show that, based on the diversity and quality of services provided by the operator and depending on their income, needs, brand interest, age, etc. The ability to exploit and use customer services in research areas is of interest, approach and selection of different types of services. Particularly, the segment of students with high demands and attention to value added services (VAS), the segment of business customers are interested and appreciate the quality of network and data data, customers. Farmers / fishers are mostly interested in basic services such as voice, messaging and 2G wide coverage.

According to statistics from the Department of Information and Communication of each province, until 31/12/2016, total mobile subscribers of Viettel, MobiFone, Vinaphone and Vietnamobile have reached 2,367,818 subscribers, 90 mobile subscribers/100 people.

Market size, market share of mobile services until 31/12/2016 in the study area as follows:

Comprehensive Mobile Marketing Services in Binh Tri Thien to 31/12/2016

Province	Network Operators	Number of Subscribers	Market Share	Estimated Revenue/Day
Quang Binh	MobiFone	118,086	16.58%	210,000,000
	Vinaphone	270,644	38.00%	481,302,774
	Viettel	316,369	44.42%	562,617,612
	Vietnam mobile	7,122	1.00%	12,665,862
	Total	*712,221*	*100.00%*	*1,266,586,248*
Quang Tri	MobiFone	116,491	20.97%	240,000,000
	Vinaphone	190,257	34.25%	391,988,555
	Viettel	247,241	44.51%	509,413,448
	Vietnam mobile	1,445	0.26%	2,975,680
	Total	*555,520*	*100.00%*	*1,144,492,132*
Thua Thien Hue	MobiFone	418,583	38.05%	1,070,000,000
	Vinaphone	181,367	16.49%	463,713,535
	Viettel	495,170	45.01%	1,265,721,419
	Vietnam mobile	3,876	0.35%	9,842,313
	Tổng	*1,100,077*	*100.00%*	*2,812,089,356*
Binh Tri Thien Region	MobiFone	653,160	27.58%	1,520,000,000
	Vinaphone	642,268	27.12%	1,337,004,864
	Viettel	1,058,780	44.72%	2,337,752,479
	Vietnam mobile	12,443	0.53%	25,483,855
	Total	*2,367,818*	*100.00%*	*5,223,167,736*

In terms of infrastructure, according to field statistics, the number of mobile base stations (BTS) of three mobile operators in the study area is as follows.

Current status of mobile broadcasting station at the study sites in response to 7/2016

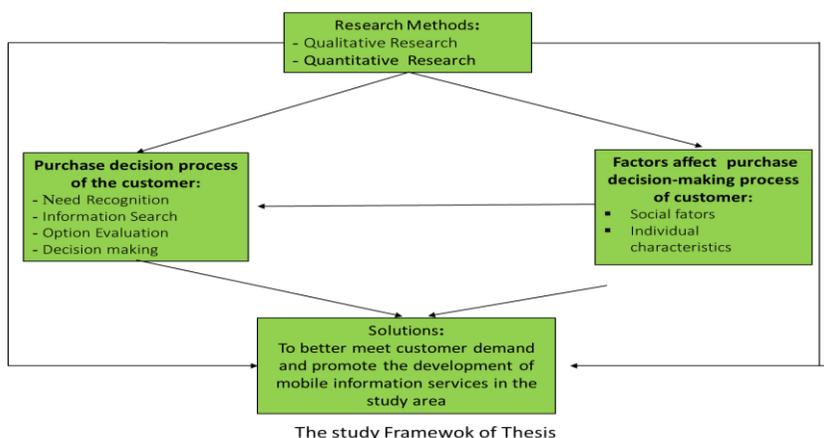| Ord.	Distric/Town/City	Number of Station MobiFone			Number of Station Vinaphone			Number of Station Viettel		
		BTS 2G	BTS 3G	BTS 4G	BTS 2G	BTS 3G	BTS 4G	BTS 2G	BTS 3G	BTS 4G
I	Quang Binh Province	288	288	25	300	300	130	338	416	198
1	Tuyen Hoa District	30	30	0	32	32	3	37	39	20
2	Minh Hoa District	26	26	0	37	37	3	37	41	21
3	Quang Trach District	32	32	0	23	24	14	35	44	22
4	Ba Don Town	22	22	0	20	20	15	24	29	15
5	Bo Trach District	54	54	0	50	51	20	70	83	38
6	Dong Hoi City	52	52	25	52	54	44	39	66	27
7	Quang Ninh District	24	24	0	30	30	15	32	38	19
8	Le Thuy District	48	48	0	56	52	16	64	76	39
II	Quang Tri Province	217	310	0	231	243	7	269	312	126
1	Vinh Linh District	37	55	0	35	25		43	50	20
2	Gio Linh District	30	42	0	31	29		35	43	17
3	Huong Hoa District	22	30	0	25	30	7	39	41	17
4	Da Krong District	14	15	0	22	20		22	20	9
5	Cam Lo District	18	28	0	22	35		22	31	12
6	Dong Ha City	37	50	0	34	36		37	35	17
7	Trieu Phong District	25	42	0	27	22		29	41	17
8	Quang Tri Town	7	8	0	5	10		11	14	6
9	Hai Lang District	26	39	0	29	35		30	36	14
10	Con Co District	1	1	0	1	1		1	1	1
III	Thua Thien Hue Province	339	434	30	320	281	46	315	334	167
1	Phong Dien District	32	40	0	39	21		20	20	10
2	Quang Dien District	21	26	0	17	16		32	35	18
3	Huong Tra Town	39	50	0	35	35	2	32	37	19
4	Hue City	100	122	28	88	88	35	89	101	51
5	Huong Thuy Town	30	43	2	29	29	5	26	26	13
6	Phu Vang District	36	48	0	35	33	4	44	46	23
7	Phu Loc District	53	73	0	45	40		41	38	19
8	A Luoi District	19	22	0	22	13		22	22	11
9	Nam Dong District	9	10	0	10	6		9	9	5
	Binh Tri Thien Region	844	1032	55	851	824	183	922	1062	491

2.2 Research methods

2.2.1 Research Framework

By studying the evaluation methodology from the review studies, the author orientated the approach and selected the method of evaluating the factors affecting the alternative behavior of the mobile network of customers in Binh Tri Thien area by qualitative and quantitative research methods.

Qualitative research is conducted through consultations with experts; interviewing semi-structured groups related to the state management in the field of telecommunications and participating in the management of mobile information service business in order to perfect the research model, set up questionnaires and observation variables to complete the questionnaire, form the scale of the factors affecting the choice behavior of the mobile network of customers.

Quantitative research was conducted through pre-designed questionnaires with questions to collect primary data, evaluate scales, and quantify theoretical models.

The research framework is summarized in the following figure:

Research Methods:
- Qualitative Research
- Quantitative Research

Purchase decision process of the customer:
- Need Recognition
- Information Search
- Option Evaluation
- Decision making

Factors affect purchase decision-making process of customer:
- Social fators
- Individual characteristics

Solutions:
To better meet customer demand and promote the development of mobile information services in the study area

The study Framewok of Thesis

2.2.2 Research Model

The consumer purchasing decision process model consists of 5 stages of cognitive needs, information search, option evaluation, purchase decision and postpurchase behavior in the interaction of environmental factors. Fields and human factors are widely acknowledged by researchers such as James F. Engel, Roger D. Blackwell and Paul W. Miniard (1993), Philip Kotler, Gary Armstrong, John Saunders, Veronica Wong (2014)
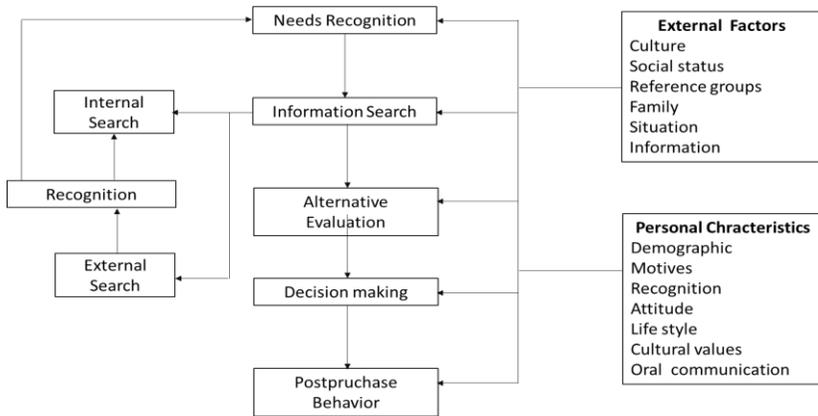
Model of Purchase Decision making Process by James F. Engel, Roger D. Blackwell, Paul W. Miniard

Therefore, the research model of the decision-making process for choosing the mobile network and the factors influenced by each stage is proposed by the author based on the original decision-making process including 5 steps that many researchers done in Marketing but withdraws the postpurchase behavior because it is not within the scope of the study. At each stage, the team will adjust the factors, measurement characteristics based on the research and other researchers' materials to fit into the telecommunications market.
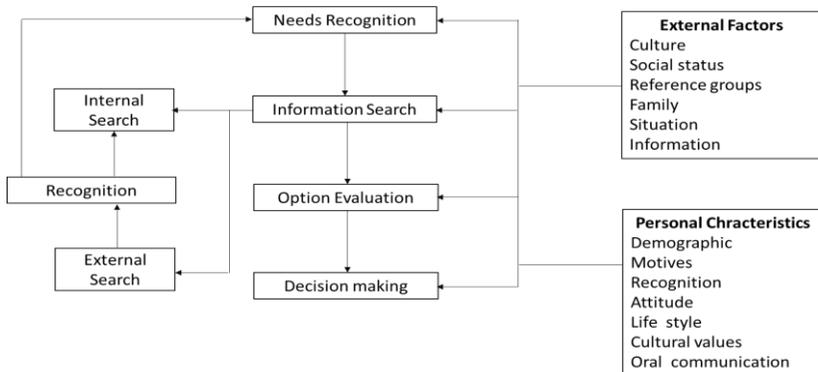
Model proposed by author

2.2.3 **Research process**

Based on the proposed research model, the author combines qualitative and quantitative research to clarify and measure the impact of factor groups on alternative behavior of consumers according to the research process as follows:

Decision-making Process for choosing mobile network and factors affecting each stage

Stage	Measure	Characteristics of Measure	Sources
Needs Recognition	Awareness scale	Identifier and hierarchy	Cathy Neal, Pascale Quester, Del Hawkins (2004), consumer behavior implications for marketing strategy. Edit by author
Information Search	Measure available awareness, sources of influencing information, and the order in which they affect the sources	Nominal scale, hierarchy, 5-level Likert scale	Cathy Neal, Pascale Quester, Del Hawkins (2004), consumer behavior implications for marketing strategy. Edit by author
Evaluation of Alternatives	Measure by rational or emotional model	5- level Likert scale .	Cathy Neal, Pascale Quester, Del Hawkins (2004), consumer behavior implications for marketing strategy. Edit by author
Mobi Network chosing Decision	Influence factors determine the choice of mobile network through TAM (Technology Acceptance Model) Recognize usefulness Perceptive ease-of-use	Likert scale . Nominal scale, Using the	David (1985), Chuttur M.Y (2009) Edit by author

Stage	Measure	Characteristics of Measure	Sources
	Attitude toward use Intention to use	predictive regression technique; Binary logistic	

2.2.3.1 Qualitative research

Qualitative research is an approach to materials related to research, the results have been researched to answer some of the research questions, to describe the factors that influence the selection behavior. Select the customer's mobile network and observation variables in line with the situation, the real situation of the mobile information service market in Binh Tri Thien area.

In addition to theoretical background research, the author has collected the opinions of experts, managers and entrepreneurs in the field of mobile information from which to draw conclusions. It has the scientific and practical basis as the basis for proposing, adjusting the scale and influence factors, creating a basis for the development of feasible solutions and recommendations for the development of the market. mobile information services in Binh Tri Thien area.

2.2.3.2 Quantitative research

Questionnaire design

Based on information aggregated during qualitative research, questions are designed to gather information related to the phased research in the customer selection process on the basis of inheritance of the original measure of the authors in the world, consult experts in the industry. The author designs questionnaires and conducts pre-interviews, discusses with supervisors and experts and then designs the formal questionnaire.

Research Approach

Research subjects are customers using mobile information services in the Binh Tri Thien area, not including organisational customers.

Size of the sample: With the ability to control the overall market of mobile information services in Binh Tri Thien area, authors can use the formulas for calculating the sample size. There are various formulas for probability sampling such as Cochran, Krejcie and Morgan. Each method, formula has different advantages and disadvantages. For this study, the author uses the Krejcie & Morgan sampling method with the following sample size determination formula as follows:

$$n = \frac{X^2 * N * P * (1-P)}{(ME^2 * (N-1)) + (X^2 * P * (1-P))}$$

In which:

✓ N: sample size

✓ X^2: Chi squared value corresponds to Reliability values and degree of freedom

✓ N: the overall size determined by the number of subscribers in the surveyed province.

✓ P is the ratio of the total phenomena to the study, in this case P = 0.5, so that the sample size will be maximized under the condition that the other variables remain constant.

✓ ME (Margin of Error) error sampling number in this case selected value of 4%

From this formula, replacing the total customer value N of the market in Thua Thien Hue province is 1,100,077 subscribers, we calculate the number of sample size needed is 600. This number 600 subscribers will be devided into Prepaid and Postpaid packages of three major networks in Thua Thien Hue market are Mobifone, Viettel and Vinaphone. This approach is similar for Quang Tri and Quang Binh and each province has a sample size of 600 units.

Sampling Selection

The customer base of telecommunication services in the Binh Tri Thien market area is very large with various behavioral characteristics. Therefore, in order to select the sample unit with multiple characteristics, the authors propose to select a stratified random sampling method.

Step 1: Obtain customer data divided by market share to district level and package the networks in the area (district/city) to determine

the percentage of customers in each participating region. (see Annex).

Step 2: Investigators arrive in the area to investigate and accumulate elements of all sample sizes according to the quotas already calculated in step 1.

Step 3: Investigators investigated at the point of promotion point card at the point of sale to accumulate enough number of customers is the real subscriber (sim card replacement using non-charge cards) divided in each market area and according to each package.

Based on this principle, representativeness is expressed in terms of the market share of operators in each market area under the package, the respondents have a high chance of being selected because of during the time of promotion, appears to buy scratch cards a lot. Objectivity is expressed in the fact that enumerators have to approach the principles stated, not using relatives who are familiar to interview.

2.2.3.3 Analyze the influence and impact of factors on the decision-making process of choosing the mobile network of customers.

After collecting the questionnaires, the evaluation data will be compiled on statistical data processing software such as SPSS, Excel to analyze, identify and evaluate the factors influencing the purchase decision-making process by the customer.

2.2.4 Methods of data analysis

-Frequency statistics, average value calculation

$$X=\sum X_i * f_i / \sum f_i$$

In which   X: Average value

               X_i: Variable i

               f_i: Frequency of value i

               $\sum f_i$: The total number of questionnaires was valid

- Analysis of one-dimensional variance One Way ANOVA

Some Assumptions of One-Dimensional Analysis Method (ANOVA):

+ Comparative groups must be independent and randomly

selected.

+ Comparative groups must have a standard or sample size that is large enough to be considered as a standard approach.

+ The variance between the groups must be identical. Statistical hypotheses are used to test for variance uniformity

Hypothesis H_0: Variance between homogeneous groups.

Hypothesis H_1: Variance between heterogeneous groups

If Sig> α: Accept H_0

Statistical hypotheses are used to test for variance uniformity

Hypothesis H_0: There is no difference in evaluation between groups

Hypothesis H_1: There is a difference in evaluation between groups

If Sig> α: Accept H_0

- Cronbach Alpha reliability check

In quantitative research, it is difficult and complex to measure large dimensions, not simply using simple scales, but using more detailed scales (using multiple observation questions to measure factorize) to understand the nature of the big factor. Therefore, when creating a research questionnaire, we usually create the observation variables x1, x2, x3, x4, x5 ... which are child variables of factor A for the purpose instead of measuring one factor. A is relatively abstract and difficult to produce accurate results, we go to measure the small internal variables and infer the nature of the factor. However, not all observable variables x1, x2, x3, x4, x5 ... we give to measure factor A are reasonable, reflecting the concept, properties of A. Therefore, a tool should be available to help determine which observation variable is appropriate, which observer variable is not suitable for inclusion in the scale

Cronbach (1951) gives a confidence coefficient for the scale. The coefficient Cronbach's Alpha has a variable value in [0,1]. Theoretically, this factor is as high as possible (the more reliable the scale). However, this is not entirely accurate. The Cronbach's Alpha coefficient is too large (about 0.95 and above) to show that there are no significant differences in the scale, this phenomenon is called duplication in the scale (Nguyen Dinh Tho, 2009).

If a variable variable has a Corrected Item - Total Correlation ≥ 0.3, then it satisfies the requirement (Nunnally, 1978). The value of Cronbach's Alpha from 0.8 to nearly 1: the measurement scale is very good; 0.7 to near 0.8: good measurement scale; 0.6 or more: Qualified measurement scale (Hoang Trong, Chu Nguyen Mong Ngoc, 2008).

- Method of Exploratory Factor Analysis

The Exploratory Factor Analysis (EFA) is used in cases where the relationship between the observed variables and latent variables is unclear or uncertain. The EFA analysis is then conducted in a exploratory manner to determine how the range, the degree of relationship between the observed variables and the underlying factors, is the basis for a set of measurements to withdraw or reduce the number of observation variables loaded onto the underlying factors. Basic factors are linear combinations (structural diagrams) of the described variables by the following system of equations:

$$F_1 = \alpha_{11}x_1 + \alpha_{12}x_2 + \alpha_{13}x_3 + \ldots + \alpha_{1p}x_p$$
$$F_2 = \alpha_{21}x_1 + \alpha_{22}x_2 + \alpha_{23}x_3 + \ldots + \alpha_{2p}x_p$$

- Method of Binary Logistic Regression

Binary Logistic Regression is a regression model that uses a dependent variable called a binary variable to estimate the probability of an event occurring with the information of the independent variable we have.

Binary Logistic regression model of the form:

$$Ln \left[\frac{P(Y=1)}{P(Y=0)} \right] = B_o + B_1 X_1 + B_2 X_2 + \ldots + B_i X_i$$

Of which: P (Y=1) Probability for the event to occur..
P (Y=0) The probability that the event does not occur.

Summary of Chapter 2

Based on the secondary data on geographical characteristics, consumption characteristics and market size, it can be seen that the Binh Tri Thien market contributes relatively high value to the telecommunication industry. In addition, with the current trend of mobile operators, mobile service charges in the coming time will be

reduced so that with a market area with a population of 2.6 million people, the number of subscribers is quite large with nearly 2.4 million customers, and infrastructure is being invested from mid-2016, the area of Binh Tri Thien is a potential market with high potential for consumption. Therefore, study on consumer behavior in this area is necessary to better satisfy customer demand as well as promote mobile communication services in the developed area.

From that situation, based on Philip Kotler's perspective on consumer purchasing decision-making and the absorption of research by local and foreign authors, the researcher has identified a theoretical framework and methodology. measurement and evaluation for each stage in order to demonstrate the behavior of customers during the stages of the purchasing decision process in order to study the factors influencing the choice of network mobile in Binh Tri Thien marketplace

CHAPTER 3
FACTORS AFFECTING THE MOBILE NETWORK ALTERNATIVE DECISION BY CUSTOMERS IN THE MARKET OF BINH THI THIEN

3.1 Characteristics of survey samples

Data collection from 595 questionnaires in Hue, 476 questionnaires in Quang Tri and 587 questionnaires in Quang Binh are analyzed. Regarding to gender, it can be seen that the gender ratio among male and female of the clients in Hue and Quang Tri is quite balanced with the rate of 52.44%, 47.56% and 53.99%; 46.01% respectively, in the sample. The customer group in Quang Binh has a higher percentage of female users than male, with 64.05% of female clients and 35.95% of male clients.

3.2 Factors influencing choice of mobile network in Binh Tri Thien area

* *For the stage of needs recognition*: Influence on customer perception by factors such as user community (network has many friends, relatives use), quality and call rates. In which friends,

relatives have the greatest impact, and then factors of quality of network and low cost.

* *For the information search phase*, the percentage of customers in Thua Thien Hue market needs to seek supplemented information is 44%, while in Quang Tri market is 18% and 32% in Quang Binh . A reliable source of customer information is also a source that customers often seek to refer to from friends and relatives. Most consumers have "prejudices" with the information they collect, but not the additional information to verify the falsehood of perception.

The information search stage does not specify the factors influencing the decision to select the customer's mobile information network, but the results of analysis of information search behavior of customers for the criterion of interest at this stage is very important. Finding supplementary information or prejudices with insights, information available in the customer's perception; Reliable customer information and information sources often used for the criteria of interest have shown the cause as well as the question of why and what factors affect customer behavior in the period of evaluation options as well as in the decision-making phase of buying.

* *For the option selection stage*, 82% of customers in Quang Binh market, 88% of customers in Quang Tri and 56% of customers in Thua Thien Hue tend to make sensible decisions. The percentage of customers choosing the right solution in these markets are Quang Binh 18%, Quang Tri 12% and Thua Thien Hue 44%. This issue requires network operators to be truly concerned about their long-term communication strategy, depth and solution to provide information that customers can record and store in their knowledge of the information on network, their product service from which to melt sympathy for network operators.

* *For the purchasing decision stage*, three factors that have a strong influence on customer decision-making in Binh Tri Thien are the necessary/useful factors of mobile information services, the ease of use of the service and the customer attitudes towards mobile communications. However, the most cited customer factor in the buying decision phase is the usefulness of value-added services, content services, and ease of use because today more and more

customers register to use value-added services and content services.

3.3 New contribution of the thesis

- The dissertation takes a new research approach when conducting research on customers purchase behavior in the process of demand awareness, information search, option selection and decision making. Research results show the factors that influence customer behavior at each stage of the process and the interactions among the cross-cutting factors of the process. This research supplement to previous studies in field of telecommunications that has not really analyzed deeply in the process.

- The research results show that there is a new idea in the process of evaluating and selecting customers' options. Customers make decisions not only by reasoning based on comparison and quantitative measurement but also by emotional factor. This factor plays a very important role. Pointing out that customers evaluate/choose options by their emotion is a new finding in comparison to previous studies, while affirming that the brand of company and psychological factors play a very important role in choosing the plan.

- This study has identified the peculiarity of mobile communication services, that is the linkage on technical and cost among mobile users. Technical linkage shows that the quality of intra-network connection between subscribers is usually better than the quality of off-net connection. Cost linkage shows that the cost of on-net connection is cheaper than outbound connection.This finding clarifies the opportunity and limitation in the competition of the operator for each location/market segment by market share as well as explain the choice behavior of the customer due to the impact of the linkage.

- The thesis clarifies the trend of consumers' future use of mobile information services, thus providing some suggestions for investing in 4G network infrastructure, research/design content services , brand communications, ... help network operators better meet the needs of customers and promote mobile information services in the developed area.

CHAPTER 4
SOME SOLUTIONS FOR BETTER MEETING DEMAND OF CUSTOMERS AND PROMOTE THE DEVELOPMENT OF MOBILE INFORMATION SERVICE BUSINESS IN THE MARKET OF BINH THI THIEN

First Solution: *Promote investment in 4G network infrastructure, provide value-added services with high application value and step by step business content services*.

The situation of mobile network of operators in Binh Tri Thien area shows that in order to meet the demand of diversified and high quality in accordance with the trend of new customers, especially content services, large data services, Internet connection (IoT), etc., the network should accelerate the investment and exploitation of 4G (BTS 4G) terrestrial receiving station. Improve and optimize the transmission network to increase the speed of data transmission, ensure the provision of content services, data services, ... continuous, high quality.

In parallel with the investment in infrastructure, operators of mobile communication services should speed up the roadmap for moving from the network services business to the current value added services business, content services, if not, Vietnam's mobile communication service enterprises will become enterprises providing infrastructure, losing competitive advantage in the field of value-added services, content services of Google, Facebook, Iflix, Viber Media, ... in Vietnam market.

Second solution: *Build a community of consumers using the service of the network.*

Research shows that the factors of friends, relatives and colleagues have a great influence on the choice of operator to provide mobile information services of customers.

To build a customer community that is socially and professionally connected to not only enhance the competitive advantage of new customer development, but also help keep customers out of the network. The establishment of a community using mobile

information services is the foundation of the Internet community to use OTT social services, content services and IoT Internet to compete with National Telecommunications Corporations As well as ensuring the safety and confidentiality of information in accordance with the regulations of the Ministry of Information and Communications.

Third Solution: Promote communication to enhance brand value, community use and convenience, ease of use of products and services for each customer segment.

Research results show that the information search phase does not clearly indicate the factors that affect the decision to select a mobile operator to provide mobile customer service, but the communication to provide information to guests as well as for the community of relatives, friends and colleagues of customers is extremely important, affecting the decision of customers at the assessment stage, selection of options as well as decision-making phase buying.

Specifically:
- The majority of customers in Binh Tri Thien use the method of evaluation, choosing the options by feeling. For customers who choose the option by reason, the criteria they are interested in is the network has many friends, relatives to use and quality network.
- Customers are interested in the utility of the product / service and ease of use when making a purchase decision.

Therefore, to promote the brand communication, the community of friends, relatives, colleagues use the network and communication on the utility, ease of use of products and services according to each customer segment to enhance value. branding, creating trust for customers when evaluating options, choosing the network is very important

Beside content that needs to communicate and convey information to customers, network operators need to select methods and media suitable for each segment of customers to optimize the reception of information of customers, promote efficiency of communication based on the factors of customer interest, the ways they seek information as well as the level of each customer segment to build appropriate communication methods.

PART 4. CONCLUSION

Results of the thesis investigating the factors affecting the choice of mobile customer service in Binh Tri Thien area is a multi-stage process.

* There are many factors that affect the perception of customer demand in the Binh Tri Thien region. However, there are three prominent factors contributing to the market in this market: user community, quality of service and cheap price.

* The customer's information search behavior for the criteria of interest, additional and trusted information, or the customer often prejudiced against the knowledge, information available in his or her awareness highlighted explained why and what factors affect the behavior of the customer during the evaluation phase of the choice as well as in the decision making phase of the purchase.

* Most of the clients in the Binh Tri Thien area, even in case of professional division, often use their evaluation/selection method by felling, which leads to brands that created affection, good sympathy with consumers will be the preferred choice.

* The impact factor affecting the customer's choice of network is the usefulness and ease-of-use of mobile information services, especially value-added services, content services. Therefore, the design of service products are more convenient, easy to use meaning very important

Based on the specific analysis of customer behavior in mobile service using at the Binh Tri Thien area, the author offers some solutions to better satisfy the needs of customers in utilizing mobile information services as well as promotes the development of operators/enterprises and mobile information services in Binh Tri Thien region.

Limitations of the study

The research results are based on the appropriate application of the theory of consumer behavior, the analysis of survey data and secondary data from mobile information service enterprises,

Department of Information and Communication as well as from a number of independent research organizations. However, due to limited field size in the three provinces of the North Central Coast, the needs assessment of customers sometimes has not really achieved absolute results because the status of subscription trash users, sim card users still much and especially consumer trends in the current period is constantly changing and happening at great speed, so the results of research thesis will inevitably be avoided shortcomings. The author expects teachers as well as readers sympathetic and hope to have conditions to overcome these shortcomings in the following research.

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