FACTORS DETERMINING MARKET SEGMENTATIONS IN THE SERVICE INDUSTRY: THE CASE OF MOBILE TELEPHONE IN KENYA

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DECLARATION

I declare that the research project presented is original and has not been presented for the award of a degree in any university before.

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RECOMMENDATION

This project has been submitted for examination with our approval as University Supervisors.

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ABSTRACT

The aim of this study was to establish the practice of market segmentation by the mobile telephone operators in Kenya; if so, to identify the factors used. The study also aimed at determining the importance of geographic factor in segmenting the mobile telephone market and to establish a difference between the geographic and socio-economic factors used by the mobile telephone operators. The study had three hypotheses: first, mobile telephone operators in Kenya practise market segmentation; second, the geographic location is the most important factor used in segmenting the market; and, third, there is the difference between the geographic and socio-economic factors used by the mobile operators in Kenya. To test these hypotheses, the two-paired t-test was used. All the three hypotheses were accepted. Thus the findings of the study showed that mobile telephone operators in Kenya practised market segmentation and the geographic location was the most important factor. The findings revealed that there was the difference between the geographic and socio-economic factors used by mobile telephone operators. Further research is recommended to consider more market segmentation factors and other telephone service providers in the telecommunications sector.

ABBREVIATION

CCK	Communications Commission Of Kenya
ITU	International Telecommunication Union
SMS	Short Message Service
E – Mail	Electronic Mail

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background information

For decades, the landscape of Africa's telephone market was characterised by the dominance of the fixed - line telephone. Before the advent of the mobile telephone, the use of fixed-line telephone as the main telephone means was one of the features of the telecommunications sector. It had constraints in copper wire infrastructure, inflexibility, high cost, lack of simplicity in installation, and accessibility. With developments in the telecommunications technology and a shift of policies towards liberalisation, new opportunities were created for the emergence and growth of mobile telephone business. The mobile telephone has the advantage over the fixed-line by being wireless, easy to install, flexible and more accessible even to the low-income earners and sparsely populated areas, (International Telecommunication Union (ITU), 2004).

Since mid 1990s the use of mobile telephone has spread far and wide in Africa. In 1999, in Africa, there were more subscribers of fixed-line telephone than those of the mobile telephone. In the same year, there were about 5 million mobile subscribers in the whole continent while the total number of subscribers for the fixed-line accounted about 20 million. After a year, the figure for mobile reached 15 million. By year 2001, the number of mobile subscribers had grown to about 25 million and that of the fixed –line telephone slightly more than 21 million. The growth of mobile telephone had remained overwhelming that the number of subscribers reached 51.8 million in 2003 by leaving behind the fixed- line trailing with 25.1 million subscribers.

By early 2003, the mobile subscribers accounted for over 65% of the total telephone users in Africa. It was calculated that between 1998 and 2003, the number of mobile subscribers in Africa had increased by 1000 per cent, (ITU, 2004).

At the present, Africa is considered as the region with the highest level of mobile growth in the world. The driving force for the growth is attributed to certain factors. First, it is the liberalisation policy that favours the mobile telephone segment. Second, the demand for the telephone use is so high but it has not been met by the traditional fixed-line telephone. Third, the use of prepaid payment system fits with the tradition of payment in cash in Africa and the ability of the low-income customer. Fourth, there is the participation of big investors with a pan African and, in some cases, a world status. Fifth, the existence of competition between mobile telephone operators has created aggressiveness and dynamism in the market, (ITU, 2004).

With introduction of new policies in Africa that favours the private investors in mobile business, many national and pan- regional mobile telephone operators have emerged in Africa. Some of these pan-African mobile telephone operators have presence in many countries in the continent.

Africa's mobile telephone growth is the highest in the regions of the world. Yet, mobile telephone penetration by the end of 2003 remained the lowest at 6.2%. The mobile telephone signal has been able to reach only 50% geographical coverage of Sub-Sahara Africa.

The forecast by International Telecommunication Union (ITU), for year 2010, put the increase in mobile telephone penetration in Africa, to 10% as the low side and to 20% to the high side. And the mobile telephone number of subscribers was forecasted to reach 200 millions, (ITU, 2004).

The growth of mobile telephone in Kenya reflected the overall pattern in Africa. The Kenya Communications Act of 1998 created the Communications Commission of Kenya (CCK) with a mandate to license, regulate telecommunications and ensure compliance both with the Act and License conditions.

Subsequent to the creation of CCK and the liberalisation of the mobile segment of the telephone market, the CCK issued License to the first mobile operator on 1^{st} July 1999 to construct and operate a national mobile network, (CCK, 2003). Prior to that this first operator had a service history since 1997 as a subsidiary of Kenya Postal and Telecommunications Corporation. But in July 1999, it became an independent company with 60% shares owned by Telkom Kenya and 40% by Vodafone. On 28^{th} January 2000, the CCK also licensed a second mobile operator where the ownership was 40% by local Kenyan Company and 60% by the Vivendi Telecom International. Vivendi remained the majority holder in the company until, in 2004, when Celtel International, the pan - regional company in Africa, acquired its 60% equity in the mobile operator. A third mobile operator was awarded license in September 2003 but failed to begin its operation during the span of this research study.

There were 15,000 mobile subscribers in 1999, which increased to 585,131 number of subscribers in 2001. The total figure reached 1,325,222 in 2002, (CCK, 2003). By early 2004, Kenya had 2.1 million mobile subscribers divided between the two mobile telephone operators.

Compared to the above number of mobile subscribers in 2004, Kenya had in the same year about 300,000 fixed-line subscribers. The mobile telephone market has established its dominance since 2003. This accounted 75% of the total market share in telephone, (Safaricom, 2003).

The number of mobile subscribers has kept increasing as operators compete to expand their customer base. In geographical network coverage, mobile operators have continued competing to reach remote rural markets and areas far from Nairobi and other cities and towns in the country. The two operators produce a wide range of brands, and maintain high advertising expenditures. They give main services in national and international voice calls and the short message service, SMS. The mobile operators use postpaid and prepaid payment plans although they use mainly the latter.

The level of mobile telephone penetration in Kenya was 7% in 2004. This level was expected to grow to 10% to 20% by 2010, (CCK, 2003). This was untapped market that mobile telephone operators compete to target. And the demand for mobile has a potential to grow even further with economic growth.

To have competitive advantage in the market, the mobile telephone operators have to identify the appropriate target market. There is a fertile ground for intense competition in Kenyan market. The sphere of intense competition includes both the already tapped and untapped market.

1.2 Problem statement

Market segmentation, as a business strategy, is a tool that helps a marketer to appropriately address the needs of that particular segment. This is particularly so in an emerging market.

The mobile telephone market is an emerging market in Kenya with fierce competition in the telecommunications sector. In their fierce competition for the market, it is not known how the mobile telephone operators segment their market, and what bases they use.

1.3 Objectives of the study

The main objective of the research study is to establish the practice of segmentation and identify the factors used to segment the market by mobile telephone operators in Kenya.

The more specific objectives of the study are:

i. To establish the practice of market segmentation by mobile telephone operators in Kenya;

ii. To determine the importance of geographic factor in segmenting the market by mobile telephone operators in Kenya;

iii. To determine the difference between the geographic and socio-economic factors used by the mobile operators in segmenting market.

1.4 Hypotheses of the study

i. Mobile telephone operators in Kenya practise market segmentation;

ii. Geographic location is the most important factor used in segmenting the

iii. There is the difference between the geographic and socio-economic factors used by the mobile operators in segmenting the market.

1.5 The justification and significance of the study

The mobile telephone market is fast growing both in urban and rural Kenya. It has intense competition for market share between mobile telephone operators. This justifies the relevance of research study of factors and bases considered in mobile market segmentation.

The mobile telephone market is an emerging market. The findings of the study can draw the attention of the operators in the market to appreciate the concept and practices of market segmentation in the real world of the mobile telephone market.

The findings of the research study have a potential to stimulate the interest of market segmentation researchers and academics in general and mobile telephone operators in particular. The study will contribute knowledge in this research area and can stimulate further studies.

1.6 Scope and limitation of the study

The research study is limited to the mobile telephone operators. This does not include the fixed – line telephone market and their operators. The focus is on the mobile telephone market area and exploratory in approach. The scope of the study considered the years between 1997 and mid 2004.

1.7 Definition of terms

Factors of segmentation: These refer to the variables such as geographic, demographic, socio-economic, product attitudes, user status and consumption behaviour. The word ' bases' and ' variables' are used alternatively in this research study.

Mobile telephone: It is the telecommunications system that uses wireless network.

Mobile telephone operator: This refers to the company that provides mobile telephone services in national and international voice calls, shorts message text and other services using the wireless mobile network.

Mobile subscribers: These are customers who subscribe to the mobile telephone operators' services.

Prepaid: The service plan offered by the mobile telephone operators which allows the subscribers to prepay for the services. It does not involve entering contract or having a credit card. This is the common and popular plan.

Postpaid: This is the service plan offered by the mobile telephone operators that is not common and popular. It involves such as use of credit card and deposit for the services.

Roaming service: The service offered to the subscriber when travelling outside the local calling area.

SMS: This is Short Message Service that sends and receives short text message using the mobile operator's network.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

One of the most fundamental concepts in marketing is the notion of segmentation, (Wind, 1978). Segmentation is the process of breaking apart of a particular larger market into smaller constituent parts. It " involves breaking down of the market into increasing homogeneous sub-groups of customers each with very specific needs", (Sargeant, 2001). Kotler (1991) sums up this, "as the task of breaking the total market into segments that share common properties''.

In the market segmentation, heterogeneity is the rule. It assumes, as a demand-led approach, that different needs of the customers require different approach: within the particular larger market, there can be two or more segment markets.

In essence, market segmentation is a market- oriented concept: the satisfaction of the needs of the different customers drives the marketing activities. That is " the underlining principle of market segmentation is that individual customers have different product and service needs", (Bois, 2000).

The importance of market segmentation lies in differentiating the offerings and defining the market. It lies in finding the opportunity in gaps of offering, using the segmentation as a basic input in planning and as a tool of marketing. Furthermore, it lies in its being an essential feature of marketing mix, a bridge between theory and practical world of marketing.

Market segmentation is the analysis that can be considered as a compromise in approach between the economist's who emphasises perfectly homogenous market and the behavioral scientist whose view point of buyer is a completely heterogeneous market, (Baker, 1992). The result is a relatively homogeneous market approach.

Market segmentation is dynamic, for its bases are dynamic: with new developments, new markets emerge, and the old market may shrink or disappear.

The evolution of market segmentation concept

The development of the economic price theory is considered as the basis for the origin of the market segmentation concept. The price theory showed that discriminating between segment of pricing levels would maximise profits.

Mass marketing and market segmentation

In the theoretical and practical world of marketing, the concepts of product-orientation and marketing - orientation are fundamental, (Cohen, 1987). Mass marketing strategy represents the former and market segmentation strategy the latter.

Mass marketing is a supply - led approach. It was a dominant strategy before the concept of market segmentation developed and took root. As a strategy, mass marketing assumes that people have similar needs and characteristics or even if they may have different characteristics and needs it is not worth considering the differences, (Schoell, and Joseph, 1988). The logic of the assumption leads to a single marketing mix and hence to a single marketing strategy.

From the cost perspective, mass marketing is less costly: it requires one advertising campaign, one single strategy and usually one standardised offer, (Schiffman, and Leslie, 2000). The foundation of market segmentation is the diversity of needs and characteristics of consumers. Different consumers have different needs and characteristics. They get satisfied when these differences are differently addressed.

Factors of segmentation

The factors of market segmentation are broadly divided into consumer characteristics and behavioural characteristics. Since the focus of the research study is the consumer market, the context of the bases of segmentation remains the consumer market.

Basic consumer characteristic variables include demographic, geographic, socio-economic, psychographics and psychological influence. The consumer's age, gender and family life cycle falls under demographic. Incomes, education, occupation and social class belongs to socio- economic.

Type of rural and urban area, city and region, including the population density, are part of geographic. Life style is the example of psychographics. In this category, there are consumers' interests, activities, and opinions. Psychological segmentation looks into motivation, personality and perceptions of the consumer. The effects of the basic consumer characteristics on the decision areas are, for instance, market size and place where the products and services made available, (MacCarthy, and William, 1993).

Behavioural characteristics show consumption behaviour such as usage rate, satisfaction, consumption situation and loyalty.

Benefits sought as well as user status and product attitudes fall under behavioural characteristics. The consideration of these characteristics, on decision, for instance, can affect product features, packaging and promotion.

Criteria of market segmentation

After identifying of the market on the bases that are appropriate to the market, the next task is to ensure the viability of the market. The viability criteria help to consider the potential market as a target market.

There are the commonly known viability criteria to segment the total market. First, there is a measurability criterion.

This refers to the measuring of the features of real market segment and the location that exist. The real people and where they are found are concrete. Second, accessibility of the market is important to reach a particular segment with a marketing mix. Accessibility can range from physical access to mass media channels. Third, size of the market must be substantial enough to be worthy of resources allocation to generate return. Fourth, the segment market must have stability over time.

Unpredictable market or a shrinking market has a potential of failing a validity and viability check. Fifth, the segment market must also be identifiable from the other segments. If it lacks uniqueness, it can not constitute a segment market.

2.2 Empirical studies on market segmentation

Market segmentation strategy as a concept and a practice has attracted the attention of many local Kenyan researchers.

For instance, Ng'ang'a (1991) carried out a study on " Market segmentation by the medium and large scale manufacturing firms in Kenya" that included 68 firms. In the study, a structured questionnaire to collect primary data and a t-test to measure significance were used. The respondents of the questionnaire were the marketing managers, sales managers and brand or product managers of the manufacturing firms. The study's findings showed that different industries differed significantly in their practice of market segmentation as far as demographic and geographic variables were concerned.

Riungu (2002) also carried out " A survey of the segmentation practices of Microfinance institutions in Nairobi" that involved 40 institutions. Primary data was collected using a questionnaire where the marketing managers or their equivalent were the respondents.

The findings revealed the specific variables of segmentation considered in microfinance institutions as company size, location, firm's level of technology, return on capital and collateral. The findings also showed the identified variables of segmentation as industry, cash flow, client capability, urgency of need, purpose, size of loan, lender borrow similarity and loyalty.

Nzyoka (1993) focused on " Market segmentation in Kenya: a case of commercial banks." The study used a structured questionnaire to collect primary data. The respondents were the marketing managers, sales managers and senior marketing officers in the commercial banks. The t-test was used to measure the significance of the differences of the mean scores between different segmentation variables after data was collected from 23 commercial banks.

The results of the study showed that the variables of the segmentation of the commercial banks as benefits sought by customer, region, income, population density and user status. The findings also revealed that different groups of commercial banks differed in the practice of market segmentation.

Considering all the above studies, it can be shown that little or no study was undertaken about the mobile telephone market. There is a need, therefore, to focus on filling the existing study gap in the field.

2.3 The conceptual framework

In conceptual framework, the larger market constitutes a given heterogeneous market. It is a market characterised by diverse needs and preferences.

The outer circle shows it. Market segmentation strategy, shown in the rectangle, is the strategy employed to break down the larger market into smaller segment using considered criteria and factors.

Segmentation factors consist of consumer characteristics and behavioral characteristics in the consumer market. It includes geographic, demographic, socio-economic, product attitudes, user status and consumption behavior variables. Criteria refer to the stable market, accessible market, substantial size, identifiable market and viable market. Both, the factors and criteria, are indicated in the conceptual framework by arrows.

In the conceptual framework, the segment market is a smaller and relatively homogeneous market characterised by similar needs and preferences, which can be manageable as the target market. The divided sectors in the circle do not indicate the numbers of segment market. They only represent a given set of segment markets.

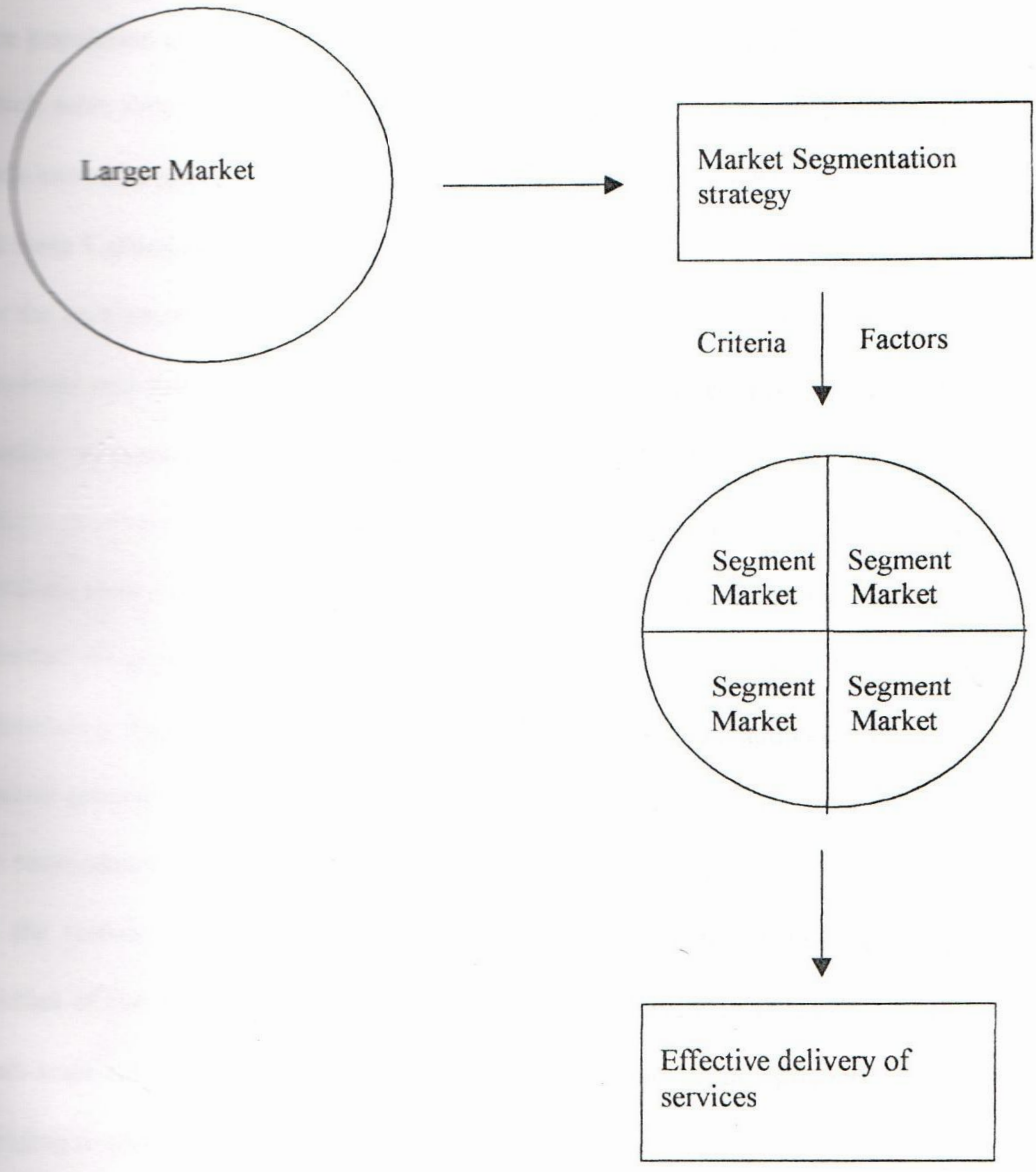

Figure 1: Conceptual framework

Source: Own

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Target Population

The population of the study consisted of 2 mobile telephone operators in Kenya, which were fully operational under the licenses given by the Kenya Government body known as the Communications Commission of Kenya, (CCK).

3.2 Data Collection

For the purpose of the research study primary data was collected from the mobile telephone operators. A structured questionnaire was used to collect data about the practice of market segmentation by the mobile telephone operators, about the factors considered in the market segmentation and the importance the mobile operators gave to the factors of market segmentation. The secondary data was collected from published sources mainly from government body, CCK, and International Telecommunication Union, ITU. The secondary sources helped to generate general information on mobile telephone operators in Kenya.

The respondents to the structured questionnaire were the customer care manager and the systems operations engineer who directly participated in the marketing activities of the two mobile telephone operators. To measure their responses, the Likert-scale rated on 5-point was used where the highest scale started from (5) extending to the lowest number (1) on the scale.

3.3 Data Analysis and test of hypotheses

In order to conduct the descriptive analysis, the primary data was edited and checked. This helped to ascertain the consistency and completeness of the collected data.

The data was classified to get individual profiles of the mobile telephone operators. The specific information related to mobile telephone operators was classified, tabulated and calculated to get percentages and mean.

To establish the practice of market segmentation by mobile telephone operators, to determine if the geographic location was the most important factor and there was the difference between the geographic and socio-economic factors used by the mobile telephone operators, the Paired t-test was used.

The results of the data analysis were presented by way of descriptive summary using tables, percentages, and mean. On the basis of analysis and interpretation, the research study findings were reported.

CHAPTER FOUR

4.0 DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.1 The practice of market segmentation

After data was collected from the two mobile telephone operators, analysis was done to identify the main services of the operators. The main services are identified as voice calls, roaming service, SMS, voice mail, e-mail services, mobile Internet and mobile banking. Table 1 shows the summary of the main services given by the mobile telephone operators.

Table 1: The main services offered by the mobile telephone operators

Service type	Frequency		Total
	Yes	No	
Voice calls	2	0	2
Roaming service	2	0	2
SMS	2	0	2
Voice mails	2	0	2
E-mail services	1	1	2
Mobile Internet	2	0	2
Mobile banking	1	1	2
Percentage (%)	85.7	14.3	100

Source: Survey results

Table 1 shows the main services given, that is, voice calls, roaming service, SMS, voice calls and mobile Internet as fully available services by mobile operators.

The users of the main services were classified into the age and the social groups. For this purpose the condensed services under Internet are mobile banking, mobile Internet and e- mail services. Also condensed was voice calls and voice mail under voice calls. Thus the four services given, that is, SMS, voice calls, roaming and Internet were considered to look into the groups of the users and the type of the services they use.

The users of mobile service in terms of the age group consisted of the age group ranging from under 20 to that of 60 year- old. Table 2 shows the summary. In the Table 2, the number one (1) was rated as the lowest point and (5) as the highest one on the 5- point scale for the type of services.

Table 2: Mobile users by age group as perceived by mobile operators

Users' age	Type of services				Percentage (%)
	SMS	Voice calls	Roaming	Internet	
Under 20	5	1.5	1	2	47.5
20 - 25	4.5	3	1	2	52.5
26 - 34	3.5	4	1	2.5	55
35 - 45	1.5	4	2.5	2.5	52.5
46 - 60	1	4	5	2.5	62.5
Percentage (%)	62	66	42	46	

Source: Survey results

Table 2 indicates the types of services used and the age group of the users. In the type of services, voice call is 66% as the more used type of service than the rest of the mobile services. It is followed by the use of SMS with 62%. The least used service is indicated as the roaming service with 42%. The likely reason for this can be that the roaming service is limited to the use of the service outside the calling network areas of the mobile operators. As to the age group users, the users that use the least in the overall mobile services are those who are under 20 year old group with 47.5%. On the other extreme end are the users in the age group 46 – 60 with 62.5%. This is followed by the users in the age group of 26 – 34 year old group with 55%. These differences are possibly due to the differences in the income level of the telephone users. Those who use more the telephone services are likely those who work and have more income.

In terms of services given by the mobile operators, the age under 20 and 20 – 25 group use more SMS than the rest of the age groups. In terms of price, this is the cheapest of all the service types. The same age group trail behind the other age groups in the use of voice calls, and mobile Internet use that are relatively expensive. The age that ranges from 26 to 60 years old use voice calls more than the other age groups. The least users of the SMS are those who are identified as the most users of the roaming service. They are the users who fall in the age 46 - 60 year old group.

As to the social group, top business executives, professionals and Junior office workers use mobile at different levels. Top business executives include senior managers of multinational corporations, professionals include lawyers and doctors, and junior office workers include technicians and secretaries.

Top business executives use mobile services 80%. The figure for professionals is 70% and for junior office workers 55%. Drivers use the services 45% and this is the lowest side in the social group. The share for students accounts for 47.5%. The differences in the percentage distributions put the business executives and professionals on the top and the students and the drivers at the bottom of the service use. In-between the top and the bottom lie the office workers that consist of technicians and secretaries. Possibly this percentage distribution reflects a social ranking of the users. Table 3 summarises the distribution of the users and service types.

Table 3: Mobile users by social group as perceived by mobile operators

Users	Service types				Percentage (%)
	SMS	Voice calls	Roaming	Internet	
Drivers	3	4	1	1	45
Students	5	1.5	1	2	47.5
Office workers	4	3.5	1	2.5	55
Professionals	1	5	4	4	70
Top business Executives	1	5	5	5	80
Percentage (%)	56	75	48	58	

Source: Survey results

The voice calls service is identified as the more used service type both in the case of the age and social groups. It is 66% for the age group while 75% for the social group.

Both in the age group and social group, the roaming service trails behind the rest of the services as the type of the service less used by mobile users with 42% and 48% respectively. It is likely that the users of the roaming service are those minority in numbers who travel outside the mobile telephone network area to many parts of the world for various reasons.

To reach the users both in terms of the age or the social group the data collected was calculated to establish if the mobile operators identify the potential users. The results indicate that 90% the mobile operators identify the potential users of the mobile services. They identify the users to introduce new brand and new product or services.

They also identify the potential users to sell the existing services or to have choices in marketing strategy. Besides, they identify the users so as to classify them depending on the needs of the users as shown in Table 4.

Table 4: Decisions considered when using segmentation factors

Decisions	Frequency		Total
	Yes	No	
To introduce new brand	2	0	2
To introduce new products or services	1	1	2
To sell the existing product or services	2	0	2
To have options in marketing strategy	2	0	2
To classify users on basis of their needs	2	0	2
Percentage (%)	90	10	100

Source: Survey results

The results indicate that the mobile operators use market segmentation to identify the potential users of the mobile services.

4.2 Tests of hypotheses

4.2.1 The first hypothesis

The first hypothesis the mobile telephone operators in Kenya practise market segmentation was tested using the *paired t-test* with a two-tailed test as the appropriate alternative. The level of significance was .05. The computed t is 1.154 while the tabulated is 2.776. Therefore, the hypothesis is accepted. This suggests that the mobile telephone operators in Kenya practise market segmentation.

The mobile telephone operators use the market segmentation factors for a prepaid and a postpaid plan system, roaming service, SMS and Internet access. However, the level of factors use for the different services differs. For SMS, it is 41.6%.

For Internet access, it is 88.33%. It is 63.33% for the prepaid plan system and 96.66% for postpaid plan system. The roaming service accounts for 85%. Among the services, SMS and the prepaid plan system, have less percentage share in the total distribution of factors used. Compared to this, the share is higher for the postpaid plan system, Internet access and roaming service. Table 5 shows the summary of the use of factors.

Table 5: Use of factors of segmentation for various services

Service type	Mobile Telephone Operator 1		Mobile Telephone Operator 2		Per-centage (%)
	Mean score	Percentage (%)	Mean score	Percentage (%)	
SMS	2.33	46.66	1.83	36.66	41.66
A prepaid plan system	3.16	63.33	3.16	63.33	63.33
Roaming service	4.5	90	4	80	85
A postpaid plan system	4.66	93.33	5	100	96.66
Internet access	4.33	86.66	4.5	90	88.33

Source: Survey results

Data was also analysed to establish the degree of importance the mobile operators attach to the considered factors of market segmentation. The results show that the degree of importance attached to the factors, as shown in Table 6, is for very important 58.3%, and for important 25%.

Table 6:The degree of importance given to the factors

Factors	Frequency			Total
	Very important	Important	Not important	
Geographic	2	0	0	2
Demographic	0	1	1	2
Socio - economic	1	1	0	2
Consumer product attitudes	2	0	0	2
User status	1	1	0	2
Consumption behavior	1	0	1	2
Percentage (%)	58.3	25	16.7	100

Source: Survey results

4.2.2 The importance of geographic location in the segmentation of the market

The second hypothesis the geographic location is the most important factor in segmenting market was tested using the paired *t*- test at .05 level of significance. Socio-economic and user status factors were considered to compare with the geographic factor. The higher computed *t* is 2.555 while the tabulated is 2.776. The second hypothesis stated that the geographic location is the most important factor used in segmenting the market by mobile operators in Kenya. Considering these results, the hypothesis is, therefore, accepted. This suggests that the geographic location the most important factor in segmenting the market.

The collected data was analysed to identify the factors of segmentation. The factors were identified as geographic, product attitudes and socio-economic. Also identified were user status, consumption behavior and demographic factors.

As Table 7 shows, the use of geographic factor accounts for 96%, consumer product attitudes 82%, and socio – economic 80%. Demographic factor makes up 44% while for user status and consumption behaviour is 78% and 76% respectively.

Table 7: The factors used in mobile market segmentation

Factors	Mobile Telephone Operator 1		Mobile Telephone Operator 2		Percentage (%)
	Mean score	Percentage (%)	Mean score	Percentage (%)	
Geographic	5	100	4.6	92	96
Consumer product attitudes	4.8	96	3.6	72	82
Socio - economic	3.8	76	4.2	84	80
User status	4.2	84	3.6	72	78
Consumption behaviour	4.2	84	3.4	68	76
Demographic	1.6	32	2.8	56	44

Source: Survey results

4.2.3 The third hypothesis

Table 7 shows the mobile telephone operators use, among others, the geographic and socio-economic factors in segmenting the market. The figures indicate the level of differences used by mobile operators.

One mobile telephone operator uses the socio-economic factor 76% while the other 84%. In the case of the geographic factor it is 92% and 100%.

To test the hypothesis there is the difference between the geographic and socio-economic factors used by the mobile operators, the paired t -test was again used. The level of significance was taken as .05.The computed t is 1.885 while the tabulated is 2.776. Thus, the hypothesis is accepted. This suggests that there is the difference in the use of the geographic and socio-economic factors by mobile telephone operators. The findings are consistent with the concept of market segmentation.

4.3 Discussion of results

The analysis of the data showed that the mobile telephone operators in Kenya practised market segmentation. They classified the mobile telephone users based on the needs of the customers. They considered market segmentation factors such as geographic, demographic, socio-economic, and consumer product attitudes. But the level of the use attached to the factors showed differences as indicated by the geographic factor, which included the density of population, with a rating of 85.71% and the demographic factor, which included age and gender, 26.98%. The same is true for the socio-economic factor, which consisted of income level of the telephone users, which accounted for 50.5%. Possibly this explains why the mobile telephone operators in Kenya pay more attention in offering their services to the big cities like Nairobi, Mombassa and Kisumu than to the sparsely populated rural areas where the income level is believed to be low.

As the analysis of the data showed the mobile telephone operators practised market segmentation, but this did not confirm that the mobile operators had or did not have a well-developed a market segmentation strategy. It reflected that they had a segmentation strategy. The more the mobile telephone operators faces competition in the market, the higher they need a well-developed segmentation strategy.

Likewise, more segmentation factors are likely considered in segmenting the market. It is possible that some of the segmentation factors, which were identified in this research study, may lose or gain importance when the mobile telephone operators meet more competition for market shares.

As the results of the study indicated, there was the difference between the geographic and socio-economic factors used by the mobile operators. This could be related to the type of the users they targeted in terms of the category such as the social groups. Besides the geographic and socio-economic factors, if the differences between other segmentation factors used by the mobile operators were considered, it could be possible also to determine the consistency of the differences. This would likely help gain a deeper understanding about the segmentation practice of the mobile telephone operators.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The findings of the research study reveal that mobile telephone operators in Kenya practised market segmentation. They use segmentation factors such as geographic, demographic and socio-economic. The findings indicate that mobile telephone operators considered geographic factor as the most important factor and show the difference between the use of the geographic and socio-economic factors by mobile telephone operators. That is to say, based on the objectives of the research study, the hypotheses were tested and the results showed that they were accepted. Considering this, it could be concluded that the mobile telephone operators used the market segmentation as a strategy for business. The segmentation strategy was considered as an important tool for the delivery of effective services in the competitive telephone market. A new research may take into account these findings and conclusion in furthering the study in the same area. From the analysis, this study makes the following recommendations.

5.2 Recommendations

First, this study focused on a limited number of factors that determine the market segmentation. More market segmentation factors can be considered for further study. When more factors are considered, it is likely that a clear picture of segmentation will be given.

Secondly, the market includes both users of the mobile telephone who live in the urban and rural Kenya. How the mobile telephone operators segment the users in the rural and urban centres may be considered as another likely research area.

Thirdly, it is also possible to carry out a research study on market segmentation that focuses on fixed telephone operators, Internet service providers, and others in the related telecommunications sector.

Fourthly, a research study may also be considered not only from the side of service providers but also from the perspectives of the service users.

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Appendix 1: Questionnaire

Introduction: The detailed data collected through this questionnaire is only used for this research purpose. The full confidentiality of the information will be kept.

PART ONE:

1. Name of Company (optional) ....

Please tick as appropriate the following:

Respondent:

Male ( )

Female ( )

Position in the firm

Marketing/sales Manager ( )

Brand Manager ( )

Customer service Manager ( )

If other position, please indicate..

2. The main services of the of the mobile telephone company

Local and International voice calls	Yes ( )	No ( )
Roaming services	Yes ( )	No ( )
SMS	Yes ( )	No ( )
Voice Mail	Yes ( )	No ( )
E -mail Services	Yes ( )	No ( )
Mobil Internet	Yes ( )	No ( )
Mobil Banking	Yes ( )	No ( )

The company 's geographical coverage of Kenya in terms of network connection

Below 25% ( )

25% - 35% ( )

35% - 45% ( )

45% - 55% ( )

55% and above ( )

The varieties of Brand the company promotes

1 ( )

2 ( )

3 ( )

4 and above ( )

The company has

A brand manager : Yes ( ) No ( )

A market researcher : Yes ( ) No ( )

PART TWO:

6. a) Does the company identify potential users of mobile telephone continuously? please tick the appropriate:

	Yes	No
To introduce new brand	( )	( )
To introduce new product or services	( )	( )
To sell the existing product or services	( )	( )
To have options in marketing strategy	( )	( )

b) Does the company classify customers on basis of their needs?

Yes ( ) No ( )

To promote brand, to introduce new product and services, the company considers the importance of the characteristics indicated below as:

	Very important	Important	Not important
Consumer characteristics:			
(a) Geographic (e.g., population density etc.,)	( )	( )	( )
(b) Demographic (e.g., age, gender etc.,)	( )	( )	( )
(c) Socio- economics (e.g., income, social class, etc.,)	( )	( )	( )
Behavioural characteristics:			
(a) Product attitudes	( )	( )	( )
(b) User status	( )	( )	( )
(c) Consumption behaviour	( )	( )	( )

PART THREE:

The Key explanations for the scale numbers from 13.1 to 14:

5= Most required factor; 4= Very required factor; 3= required factor

2= little required factor; 1= not required factor

(Please tick in the appropriate)

Service	(1)	(2)	(3)	(4)	(5)
13.1 A prepaid plan system					
(a) Geographic	( )	( )	( )	( )	( )
(b) Demographic	( )	( )	( )	( )	( )
(c) Socio-economics	( )	( )	( )	( )	( )
(d) Product attitudes	( )	( )	( )	( )	( )
(e) User status	( )	( )	( )	( )	( )
(f) Consumption behaviour	( )	( )	( )	( )	( )
13.2 A postpaid plan system					
(a) Geographic	( )	( )	( )	( )	( )
(b) Demographic	( )	( )	( )	( )	( )
(c) Socio-economics	( )	( )	( )	( )	( )
(d) Product attitudes	( )	( )	( )	( )	( )
(e) User status	( )	( )	( )	( )	( )
(f) Consumption behaviour	( )	( )	( )	( )	( )

13.3 SMS : (a) Geographic ( ) ( ) ( ) ( ) ( )

(b) Demographic ( ) ( ) ( ) ( ) ( )

(c) Socio-economic ( ) ( ) ( ) ( ) ( )

(d) Product attitudes ( ) ( ) ( ) ( ) ( )

(e) User status ( ) ( ) ( ) ( ) ( )

(f) Consumption behaviour ( ) ( ) ( ) ( ) ( )

13.4 Roaming services:

(a) Geographic ( ) ( ) ( ) ( ) ( )

(b) Demographic ( ) ( ) ( ) ( ) ( )

(c) Socio-economics ( ) ( ) ( ) ( ) ( )

(d) Product attitudes ( ) ( ) ( ) ( ) ( )

(e) User status ( ) ( ) ( ) ( ) ( )

(f) Consumption behaviour ( ) ( ) ( ) ( ) ( )

13.5 Internet Access:

(a) Geographic ( ) ( ) ( ) ( ) ( )

(b) Demographic ( ) ( ) ( ) ( ) ( )

(c) Socio-economics ( ) ( ) ( ) ( ) ( )

(d) Product attitudes ( ) ( ) ( ) ( ) ( )

(e) User status ( ) ( ) ( ) ( ) ( )

(f) Consumption behaviour ( ) ( ) ( ) ( ) ( )

PART FOUR:

14. (a) A market that never goes with
unpredictable fads : stable market ( ) ( ) ( ) ( ) ( )

(b) A market that is reachable: Accessible market ( ) ( ) ( ) ( ) ( )

(c) A market that has a substantial size ( ) ( ) ( ) ( ) ( )

(d) A market that is easy to identify: Identifiable market ( ) ( ) ( ) ( ) ( )

(e) A market that shows response
to the brand and services : Viable market ( ) ( ) ( ) ( ) ( )

15. Key explanation for scale numbers from 15.1 to 15.2

5= most common users; 4= very common users; 3= common users; 2= unknown common users; 1= not common users.

Please fill in the appropriate key number in the space.

15.1 Age	SMS	Voice calls	Roaming	Internet access
Under 20	( )	( )	( )	( )
20 – 25	( )	( )	( )	( )
26 –34	( )	( )	( )	( )
35 - 45	( )	( )	( )	( )
46 - 60	( )	( )	( )	( )

		SMS	Voice calls	Roaming	Internet access
15.2	(a) Drivers	( )	( )	( )	( )
	(b) Students	( )	( )	( )	( )
	(c) Junior office workers	( )	( )	( )	( )
	(d) Professionals	( )	( )	( )	( )
	(d) Top business executives	( )	( )	( )	( )

PART FIVE:

16. Do the following factors create new marketing segment in the company's future mobile market? Please tick the appropriate.

	YES	NO
(a) Use of wireless technology by fixed –line operators	( )	( )
(b) New entrants into the mobile market	( )	( )
(c) Rapid growth of Internet mobile users	( )	( )
(d) Saturation of mobile market	( )	( )
(e) Wide applications of mobile telephone for commerce	( )	( )

17. If there are difficulties in segmenting the mobile business, please indicate.

Thank you for your cooperation.

Appendix 2

Appendix 2A: Computations for the use of segmentation factors in segmenting market

<table>
<tr><td rowspan="2">Decisions</td><td colspan="2">Mobile Telephone Operators</td><td rowspan="2">Difference, d (d = y1 – y2)</td><td rowspan="2">Mean difference squared, d^2</td></tr>
<tr><td>Mobile Telephone Operator 1 (y1)</td><td>Mobile Telephone Operator 2 (y2)</td></tr>
<tr><td>Introducing new brand</td><td>1</td><td>1</td><td>0</td><td>0.04</td></tr>
<tr><td>Introducing new services</td><td>1</td><td>0</td><td>1</td><td>0.64</td></tr>
<tr><td>Selling existing services</td><td>1</td><td>1</td><td>0</td><td>0.04</td></tr>
<tr><td>Having options in strategy</td><td>1</td><td>1</td><td>0</td><td>0.04</td></tr>
<tr><td>Classifying customers</td><td>1</td><td>1</td><td>0</td><td>0.04</td></tr>
<tr><td></td><td></td><td></td><td>$\sum d = 1$</td><td>$\sum d^2 = 0.8$</td></tr>
</table>

Source: Survey results

Given that,

t = Paired t Test

d = Total difference

$\bar{d}$ = The mean of the difference between the related services of the mobile telephone operators

s_d = The standard deviation of the distribution of the differences between the related services of the operators

n = The number of related services given by the operators is 5

Where;

$$= \frac{\sum d}{n}$$

$$= \frac{1}{5} = 0.2$$

Then,

The standard deviation is using the formula,

$$s_d = \sqrt{\frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n-1}}$$

$$= \sqrt{\frac{0.8 - \frac{(1)^2}{5}}{5-1}}$$

$$= \sqrt{\frac{0.8 - 0.2}{}}$$

4

$= 0.3872$

Then,

The value of *t* using the formula,

$$t = \frac{\bar{d}}{Sd/\sqrt{n}}$$

$= 1.1549$

At .05 significance level for two- tailed test

When the degree of freedom (df) = 5 - 1 = 4

The critical value determined from the *Student's t Distribution Table* is 2.776.

Appendix 2B: Factors used in mobile market segmentation

Factors	Mean score		Difference	Mean
	Mobile Telephone Operator 1 (m1)	Mobile Telephone Operator 2 (m2)	(d = m1-m2)	Difference squared, (d^2)
Geographic	5	4.6	1.6	2.0736
Consumer product attitudes	4.8	3.6	1.2	1.0816
Socio - economic	3.8	4.2	-0.4	0.0576
User status	4.2	3.6	0.6	0.1936
Consumption behaviour	4.2	3.4	0.8	0.4096
Demographic	1.6	2.8	-1.2	1.0816
			$\Sigma d = 1$	$\Sigma d^2 = 4.8976$

Source: Survey results

Given that,

t = Paired t Test

d = Total difference

$\bar{d}$ = The mean of the difference between the related services of the mobile telephone operators

s_d = The standard deviation of the distribution of the differences between the related services of the operators

n = The number of related services given by the operators is 6

Where;

$$\bar{d} = \frac{\sum d}{n}$$

$$= \frac{1}{6} = 0.16$$

Then,

The standard deviation is using the formula,

$$s_d = \sqrt{\frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n-1}}$$

$$= \sqrt{\frac{4.8976 - \frac{(1)^2}{6}}{6-1}}$$

$$= \sqrt{\frac{4.8976-0.16666}{5}}$$

$$= 0.9727$$

Then.

The value of t using the formula,

$$t = \frac{\bar{d}}{Sd/\sqrt{n}}$$

$$= 0.4029$$

At .05 significance level for two- tailed test

When the degree of freedom (df) = 6 - 1 = 5

The critical value determined from the *Student's t Distribution Table* is 2.571.

Appendix 2C: Computations of the differences for geographic and socio-economic factors

Service type	Geographic factor (g)	Socio-economic factor(s)	Difference, (d = g-s)	Mean Difference squared, (d^2)
SMS	4	1	3	4.84
A prepaid plan system	5	4	1	0.04
Roaming service	5	5	0	0.64
A postpaid plan system	5	5	0	0.64
Internet access	5	5	0	0.64
Total			$\sum d = 4$	$\sum d^2 = 6.8$

Source: Survey results

Where:

$$d = \frac{\sum d}{n}$$

$$= \frac{4}{5} = 0.8$$

Then.

The standard deviation is using the formula,

$$s_d = \sqrt{\frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n-1}}$$

$$= \sqrt{\frac{6.8 - \frac{(4)^2}{5}}{5-1}}$$

$$= \sqrt{\frac{6.8-3.2}{4}}$$

$$= 0.9486$$

Then,

The value of *t* using the formula,

$$t = \frac{\bar{d}}{Sd/\sqrt{n}}$$

$$= 1.8857$$

At .05 significance level for two- tailed test

When the degree of freedom (df) = 5 - 1 = 4

The critical value determined from the *Student's t Distribution Table* is 2.776.

Appendix 2D: Computations of the difference for geographic and user status factors

Service type	Mean score of factors		Difference, (d = g – u)	Mean difference squared, d^2
	Geographic factor (g)	User status factor (u)		
SMS	4	1	3	4.41
A prepaid plan system	5	3.5	1.5	0.36
Roaming service	5	5	0	0.81
A postpaid service	5	5	0	0.81
Internet service	5	5	0	0.81
			$\sum d = 4.5$	$\sum d^2 = 7.2$

Source: Survey results

Where:

$$d = \frac{\sum d}{n}$$

$$= \frac{4..5}{5} = 0.9$$

Appendix 3: Mobile Telephone Operators in Kenya

1. Kencell Telecommunications Limited
2. Safaricom Limited