



TAMPERE UNIVERSITY OF TECHNOLOGY

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**ESTIMATING POTENTIAL BUSINESS IN TANZANIAN MOBILE
SERVICE INDUSTRY**

Master of Science Thesis

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ABSTRACT

TAMPERE UNIVERSITY OF TECHNOLOGY

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During the last decade, there has been remarkable growth in mobile penetration in most of developing countries. However, most of the Tanzanian population cannot access real time services and accurate market information due to limited and underdeveloped infrastructure. The recent convergence of mobile and communication technologies has resulted to mobile services and accelerated by high penetration of mobile phones in both developed and underdeveloped market such as Tanzanian mobile market.

The objective of this research study is developing a conceptual framework that will be used as a guidance tool for estimating business potential in mobile service industry. Hence, improving decision making process for managers or entrepreneurs in investing in prevailing opportunities related to mobile money services business. This research study has based mostly on literature review and complemented by empirical data. Literature review helped to develop a conceptual framework for estimating potential business in mobile services. Meanwhile, samples of six experienced staffs working in Tanzanian mobile industry were interviewed. A developed conceptual framework is applied in Tanzanian market by narrowing mobile service scope to mobile money services.

The main outcome of this thesis is a conceptual framework which is used as a guidance tool to managers or entrepreneurs who are planning to estimates potential business in mobile services for either existing markets or expanding in a new market segments. It is very important to any managers, investors and entrepreneurs to quantify business opportunities before stepping into any business. The developed conceptual framework focuses on three critical areas (1) selecting an appropriate target market segment, (2) identifying a sustainable business model that ensure revenue generation and, (3) screening potential business in market potential assessment factors such as Market size, Market consumption rate, Market receptivity, Market growth rate, Economic infrastructure, Economic freedom, Market intensity and Accessibility.

PREFACE

The idea of writing my master's thesis on estimating business potential in mobile services in Tanzania never came up easily. It was after series of work done with my lecturer Dr. Jouni Lyly-Yrjänäinen during Academic writing I and II courses. My personal interest on the topic was to explore and expose business opportunities prevailing in Tanzanian mobile market. Hence, attract more investors meanwhile strengthening business relationship already existing between Tanzania and Finland particular in the field of mobile technology. Therefore, developing a conceptual framework for estimating potential business in mobile money services market was the main objective of this study. However, achieving this objective has never been straightforward. Thus, various people have significantly contributed to the accomplishment of this research study.

My regards go to my Supervisor Professor Miia Martinsuo and Dr. Jouni Lyly-Yrjänäinen for your tireless mentoring guidance and flexibility. Special thanks to Dr. Jouni Lyly-Yrjänäinen for his academic writing tutelage as well as his personal counseling ability and professional advices throughout my study at Tampere University of Technology. Again, I would like also to thank Mr. Joel Mtebe (PHD student at Tampere University) for sharing experiences and challenges related to this topic.

Furthermore, I would like to express my deep appreciation to my family for the moral and financial support you gave me to pursue master's studies in Finland. Moreover, I would like take this opportunity to thank my wife Francesca for supporting me throughout this process and reminding me the importance of social life every now and then. Finally, I would like to thank my colleagues and all staffs at the Faculty of Business and Technology Management for the support during my study period in Finland.

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ABBREVIATIONS AND NOTATION

B2B	Business to Business
B2C	Business to Consumer
ICT	Information Communication and Technology
PDA	Personal Digital Assistant
GPS	Global Positioning System
GPRS	General Packet Radio Services
GSM	Global System for Mobile Communication
SMS	Short Messaging Service
MMS	Multimedia Messaging Service
WAP	Wireless Application Protocol
ROI	Returns on Investment
VAS	Value Added Services
WLAN	Wireless Local Area Network
EDGE	Enhanced Data Rates for GSM Evolution
IP	Internet Protocol
AMPS	Advance Mobile Phone System
ARPU	Average Revenue Per User
NMT	Nordic Mobile Telephone
1G	First Generation
2G	Second Generation
3G	Third Generation

4G	Fourth Generation
M-PESA	Mobile Money
OEM	Original Equipment Manufacturer
USSD	Unstructured Supplementary Services Data
m-Services	Mobile Services

1. INTRODUCTION

1.1. Background

In developing countries, access to real time and accurate market information can be limited by poor and underdeveloped infrastructure (Zainudeen et al., 2011). Therefore, traders, farmers and businesspeople cannot participate actively in the commercial exchange due to lack of sufficient information which eventually diminish their bargaining power. On the other side, adoption of mobile technology can ease such limitation (Jensen, 2007). Recent convergence of mobile and communication technologies has resulted to mobile services. The fast adoption of the services has been accelerated by the high penetration of mobile phone both in developed market and underdeveloped markets.

For instance, last decade, Tanzanian mobile phone industry has grown at tremendous rate particularly in mobile handsets and telecom services. Only between 2007 and 2011 the number of mobile subscribers has increased significantly from 8 million to 23 million respectively as shown in the Figure 1 below. It is obviously that the fast growing number of subscribers has enabled the application of mobile services in all sectors of the economy such as health, financial, education and other sectors. This convergence has created business opportunities ranging from handsets to various mobile services. Carlsson et al. (2005) indicate that this prospect of mobile phone industry is expected to rely on mobile services which will be an integral part of the revenues to be generated. Mobile services provides time independence, convenience and promptness to customers, along with cost savings (Masinge, 2010) and presents market opportunities (Lee et al., 2007).

According to Medhi et al. (2009), increasing market penetration of mobile phones even into poor communities, mobile payment schemes could bring formal financial services to the “unbanked” and allow transfer of cash as quick as text messages. Generally, mobile services promise a bright future in terms of social economic development in the communities at large. Dutt (2006) pointed out that the growing Tanzania mobile phone market is influenced by (1) sharp decline in mobile services charges, (2) cheap mobile phone headsets, and (3) simplicity of use. Consequently, possession of a mobile phone for communication is no longer regarded as luxury but rather a part and parcel of the basic need.

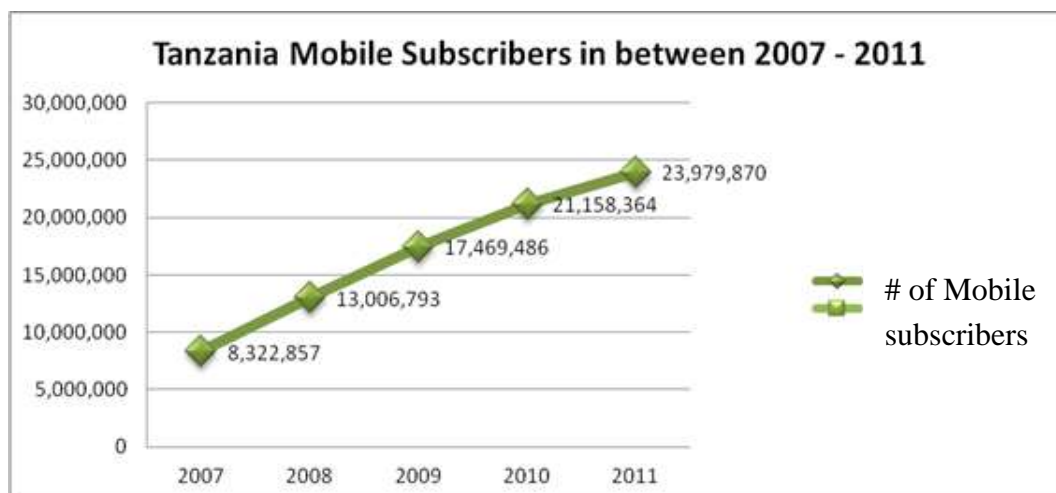


Figure 1. Illustrating the growing number of mobile subscriptions 2007- 2011 (Adopted from TCRA, Sept-2011).

Managers in the Telecommunication industry are brainstorming on how to replace and compensate the dramatic falling voice revenue. The booming mobile services sector is observed critically to rescue the situation in the telecom industry. Currently mobile service sector is used as a competitive weapon to secure more customers while providing customer value through mobile value added services. However, no much effort has been directed to this high promising mobile sector particularly mobile service, taking into consideration the high rate of mobile phone penetration both in rural urban areas. Therefore, these facts have raised the motivation of this research. This research provides a framework for estimating potential business in Tanzanian mobile services sector which will be regarded as a roadmap for guiding the new entrants in mobile services market especially mobile services developers and providers. The main intention being attracting more investors meanwhile, opening the avenue for improving social economic growth through easy access of information and knowledge. Hence reducing the existing digital divide between rural and urban areas.

1.2. Objective of the Research

According to (TCRA) (2011), more than 50 per cents of the total population are mobile phone subscribers. This number has been increasing year after year and the current projections show that the number will rise up to 37 million in 2016. Tanzania population is distributed into two main areas rural and urban. Majority of the population counting to 70 per cents living in rural areas and the rest 30 per cents live in urban areas. High mobile phone market penetration provides opportunities for ease rollout of mobile services across different economic activities in all sectors.

Despite the high promising future of the mobile phone technology in Tanzania supported by fast increasing number of subscribers still no much efforts has been

directed toward mobile services sectors especially in identifying the right business cases and evaluating the potential of the mobile services prevailing. It is for this reason the current study is initiated: to develop a conceptual framework for estimating potential business in Tanzanian mobile services sector. Therefore, the specific objective of this study is to.....

.....to estimate business potential of mobile money services in Tanzania to generate business opportunities and attract investors.

Specific objective of this research study is to be fulfilled by first analyzing the marketing process and characteristics of mobile services. These streams of literature are then used to construct a framework for analysing and estimating business potential of mobile services. In the framework, segmentation of mobile services as well as revenue generating models and derived demand are emphasized. The framework is then tested in analysing mobile services with special emphasis on mobile money services.

1.3. Research Methodology and Process

Scientific studies can be done either qualitatively or quantitatively or both depending on the nature of the problem and the objective of the study. According to Olson (1995), existing comparison between the two is clouded by two problems: (1) lack of coherent definitions, and (2) the focus of most discussions on methods instead of on the basic assumptions of these two stances. Gummesson (1993) believes that quantitative methods have been overrated as compared to qualitative methods. In reality the two methods complement each other and therefore, no method is better than the other. Table 1 below describes the difference between quantitative and qualitative research.

Table 1. Showing the difference between Quantitative and Qualitative research methods (modified from Tashakkori & Teddlie, 2003).

	Quantitative Research	Qualitative Research
Scientific method	Deductive or “top-down The researcher tests hypotheses and theory with data.	Inductive or “bottom-up” The researcher generates new hypotheses and grounded theory from data collected during fieldwork.
View of human behavior	Behavior is regular and predictable.	Behavior is dynamic, situational, social, contextual, and personal
Most common research objectives	Description, explanation and prediction.	Description, exploration, and discovery.
Focus	Narrow-angle lens testing specific hypotheses.	Examining the breadth and depth of phenomen to learn more about them.
Nature of observation	Attempt to study behavior under controlled conditions	Study how the behavior occurs in different context.
Nature of reality	Objective.	Subjective.
Form of data collected	Data collection based on precise measurement using structured and validated data collection instruments (e.g. closed-ended questionnaire, rating scales, behavioral responses)	Data collection uses in-depth interviews, participant observation, field notes and open-ended questions.
Nature of data	variables	Words, images
Data analysis	Identify statistical relationships	Identifies patterns, themes and holistic feature.
Results	Generalizable findings	Particularistic findings
Form of final report	Statistical report (e.g. with correlations, comparisons of means, and reporting of statistical significance of findings)	Narrative report with contextual description and direct quotations from research participants.

According to Gummesson (1993), qualitative research comprises of five methods. Firstly, existing materials refers the secondary data created by someone else’s purpose and these includes books, research reports articles, archival records, mass media reports computer database and others (Gummesson, 1993). The challenges associated with this methods are confidentiality that the owner might not be willing to share with third party also these data might be expensive to get them for example marketing research reports and reliability since some of the secondary data are biased based on the author view. Second, questionnaire survey usually is associated with quantitative methodology but also is applied in qualitative methods to standardize and formalize the

interviews. Third, qualitative interviews are commonly used in empirical data generation in the case studies. A good example of qualitative interviews is an in-depth interview which is usually carried out by guide. However, the degree of reliability of an interview depends on the interviewee's knowledge on the subject of study and quality of the discussion. Fourth, observation method comprises of two types of methods (1) participant and (2) direct observation. Participant observation is one of the most demanding methods, it requires the researcher to become a participant in the culture or context being observed while direct observation the participant does not typically try to become a participant in the context. However, the direct observer does strive to be as unobtrusive as possible so that to avoid biasness (Trochim, 2006). Fifth, action research is the most demanding method and it includes all methods. The researcher is involved in the whole process of the data gathering (Gummesson, 1993). Research approach adopted in any research depends upon the fundamental research objectives and questions (Denzin & Lincoln, 2000). To address the objective of this research study, qualitative research methodology paradigm will be used. This research study comprises two main part: (1) Theoretical part and (2) Empirical part.

The theoretical part of this research study will be accomplished by comprehensive literature review on topics related to marketing process that emphasis on market segmentations (i.e. reviewing and comparing different market segmentation frameworks) and mobile services focusing mainly on mobile services characteristics. These two types of literature will play great role in constructing a conceptual framework for estimating potential business in mobile services. Thereafter, the developed framework is applied in Tanzanian mobile market particularly on estimating business potential for mobile services. The conceptual framework developed will be tested on the most potential mobile services segment as it will be identified by the interviewees. The whole process of literature review will be successfully achieved by reviewing the following sources of existing materials. However, the use of existing materials should be treated with much care so that credibility of the study is not put into question mark! Therefore, trustworthy sources and high quality existing materials are recommended to be used in order to have high quality study (Gummesson, 1993). In developing a conceptual framework, numerous existing materials were used, such as relevant books, scientific journals, articles, newspapers, magazines, marketing research reports, TUTCAT databases, firm websites and other internet sources.

On the other hand, the empirical part of this study complements on the extensive literature discussed. The empirical part takes two approaches which includes in-depth interviews and action science. In conducting in-depth interview, the author designed a standard questionnaire (See Appendix 1) to provide good guidance during the interactions between the interviewer and the respondents. Five interviewees with vast

experience in Tanzanian mobile service market were interviewed. The author went far beyond the guiding questionnaire tool by probing so that to explore the knowledge, experience of the mobile market from the interviewees. Given the fact that no any research study have ever been done on estimating potential business in Tanzanian mobile market. Therefore, to ensure that the whole mobile market is studied well, the author decided to interview the diverse group of participants ranging from the Mobile service providers to mobile services aggregator. This diverse group serves a purpose of exploring the mobile market extensively and sharing the experience across the mobile market business to business supply chain as well as to get assistance in prioritizing the most potential mobile services segment. Table 2 below indicates the participants in the interviews, field of their operations, date of the interview. The real names of the participants and names of companies are reserved because of the confidentiality and sensitivity of the information provided by the interviewees.

Table 2. Interviewees and date of interviews.

Participants code	Participants Title	Field of Operation	Date
A	Chief Operation Officer	Mobile Services Providers	02.12.12
B	Business Analyst	Mobile Service Operator	04.12.12
C	Product Specialist	Mobile Service Aggregator	07.12.12
D	Senior Market Specialist	Mobile service Operator	14.12.12
E	Mobile Service Provider	Mobile Service Provider	27.12.12
F	Managing Director	Mobile Application Developer	04.01.13

The key findings of this research study raised interest ranging from mobile services aggregators to mobile network operators. Therefore, different companies already working in Tanzanian mobile market welcomed and accepted the questionnaire and were ready to be interviewed.

1.4. Structure of the Research

This master's thesis consists of seven Chapters as shown in the Figure 2 below. *First Chapter* provides a brief introduction which covers the background of the research topic and objective of the research study. Thereafter, this Chapter also describes the methodology and process taken to accomplish this research study as well as the

structure of the Master's thesis. *Chapter two* discusses literature review on the concept of marketing process main emphasis being on market segmentation frameworks, market targeting and positioning. *Chapter three* also discusses the literature review on mobile services mainly focusing on mobile services characteristics and how mobile services have evolved and acceptance features of mobile services in the community. *Chapter four* provides a comprehensive analysis on literature discussed in Chapter 2 and Chapter 3 in developing a conceptual framework for estimating potential business in mobile services. Figure 2 below illustrates the structure of this research study.

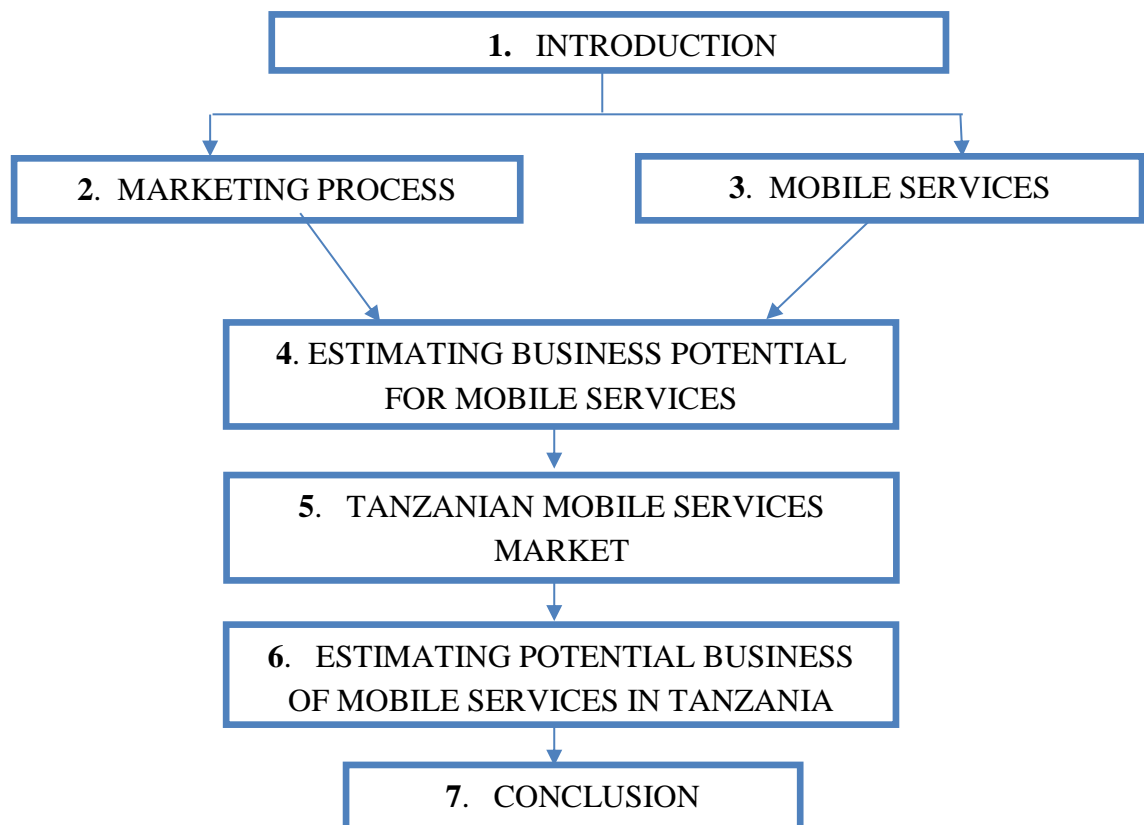


Figure 2. Structure of the research study.

Chapter five introduces Tanzanin mobile service market and discusses how mobile services have evolved in Tanzania using the concept of technology evolution discussed in chapter 3 and the chapter ends with a discussion on the challenges in the mobile services market based on views/options from the interviewees. *Chapter six* discusses mobile services market trends and identification of the most potential mobile services market segments. In addition Chapter six applies the developed conceptual framework in Chapter four of this study to Tanzanian mobile services market especially on mobile money services business. Chapter six concludes with an analysis of the key findings of the research study. *Chapter seven* concludes the research study by a summary of the key findings, recommendations and a proposal for further studies on the topic.

2. MARKETING PROCESS

2.1. Market Segmentation

2.1.1. Why Market Segments

More than five decades since its commencement, market segmentation had a wide coverage usage across all business sectors (Weinstein, 2004). Nowadays market segmentation has become the heart of marketing theory. Kotler & Keller (2009) state that marketing idea is all about satisfying the needs and wants of the customer. Therefore, market segmentation manages diverse customer needs and target resources (McDonald & Dunbar, 2004). A better customers understanding and identification of their needs and wants is an acute responsibility for every company (Croft, 1994). Different customers have different needs and demands which increases market heterogeneity. Figure 2 below illustrates market segmentation process.

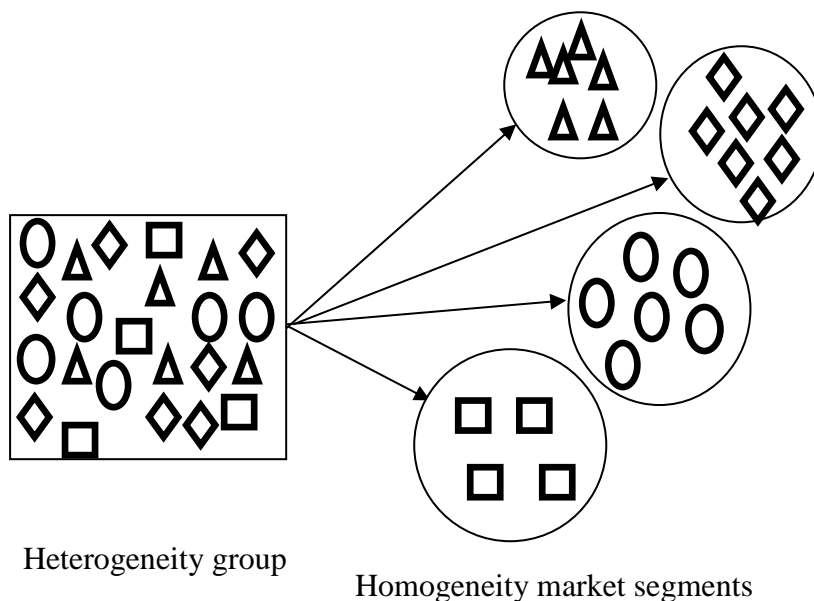


Figure 2. Identifying homogeneous market segments from heterogeneity group (Baines et al., 2008).

According to Kotler & Keller (2009), in order for a company to adapt to different customers needs, wants and values they need to have concrete answers to these questions: How the customer are?, what do they buy?, and where can they be found? However, it is impossible for the company to reach and satisfy all customers in broad

and diverse markets, since capabilities and resources do not stretch that far (Hague, 2002; Kotler & Keller, 2009). Therefore, dividing a market into groups which shares similar characteristics or interests in a certain products or services might be an effective way for a company to manage diversity, allocating resources and being able to assess the attractiveness of potential market segments. (Kotler & Keller, 2009)

According to Choffray et al. (1980); Webster (1991), a company is most likely to achieve a match between their capabilities and diversity customer needs by focusing on customers with comparatively homogenous requirements. There is sufficient literature to back up the facts that market segmentation is an inevitable process toward successful strategic marketing planning. Generally, market segmentation keeps close attention between businesses and customers and ensures efficient resource allocation and eventually leads to better marketing programs adapted to customers' needs (Albert, 2003). In addition, effective use of market segmentation should help to develop a sustainable competitive edge in competitive rivalry.

2.1.2. Basic Principle of Segmentation

As it was mentioned in the previous section, market segmentation is the most important tool in marketing activities. It helps managers to compare specifics of segments and use the knowledge to target customers with right offers meanwhile aiming at reaching the highest revenue. In order to ensure that a company is utilizing its capabilities and allocating resources in a right way, several scholars who have contributed in the development of market segmentation concept discussed basic principles of market segmentation. For instance, Frank et al. (1972); Kotler & Keller (2009) set basic principles for a successful marketing segmentation:

- Segment should be big enough
- Heterogeneous segments
- Measurable
- Reachable segment

First, every market segment that is cut out from the market should be large enough to serve profitably and also must ensure return on the investment (ROI). Depending on the business context and selected criteria, market segment should be largest possible homogenous group. Second, each segment should be distinguishable from each other. This helps the marketing people to design different products to different customers in effective communication. Third, market segment should be measurable so that in the end it will be easier to evaluate if the segment have been reached or not. In order to evaluate the effectiveness of the intervention dedicated in the specific segment clear

identifiable segmentation criteria should be put in place. Fourth, for the segment which is not reachable the entire market segmentation process loses its value. The selected segment should be accessed easily so that marketers can serve customers efficiently and conveniently.

On the other hand, McDonald & Dunbar (2004); Baines et al. (2008) suggested another approach to evaluate market segment attractiveness and successfulness of the market segmentation process. This approach uses rating for different segment attractiveness factors which includes: market growth, market profitability, segment size, competitive intensity and business cyclical situation within the industry. Hudson (2008) came up with almost similar criteria discussed by Kotler & Keller (2009). Hudson (2008) stated that to target a better market the following criteria should be used: accessibility, identifiable, well defined, networking, and homogeneous. According to the studies conducted by Frank et al. (1972); McDonald & Dunbar (2004); Baines et al. (2008); Kotler & Keller (2009), the criteria for assessing attractiveness of the target market segment varies depending on the targeting approach employed by particular organization. Successful evaluation of market segment attractiveness requires comprehensive market and customer's information available.

2.1.3. Difference Between B2B and B2C Markets

In marketing arena, a perception of dichotomy between Business to Business markets and Business to Consumer markets has always been there. The differences between them are well documented (Simkin, 2000). According to Coviello & Brodie (2001), the difference between two market contexts are mostly based on influences, buyer decision processes, and seller – buyer relationship (Coviello & Brodie, 2001). B2B companies sells opportunity to make more money through adding customer value to purchased products and reselling them while B2C companies concentrate on selling experiences and feelings to end customers. Thus, intention to make profit is the key feature in B2B markets (Kotler et al., 2002; Lyly-Yrjänäinen et al., 2010). Figure 3 below shows other factors that differentiate the two markets contexts.

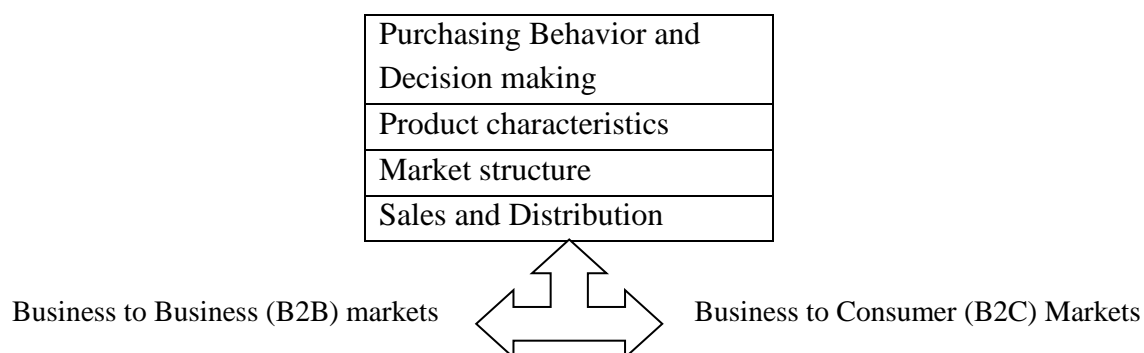


Figure 3. Difference between B2B and B2C Markets

Purchasing Behavior and Decision making

The main difference between Business to Business markets and Business to consumer markets is that B2B companies buy from other companies while in B2C private customers buy from companies (Ford et al., 2002). Despite of the differences between B2B and B2C markets in purchase process both ends in a purchase (Brown & Fern, 1984). Thus, what makes a difference between them is the complexity of the decisions a purchaser has to go through in business environment. Wilson (2000) questioned that why should be assumed that different theories are necessary to explain exchange behaviors adopted by the same person in different contexts? However, people are not transformed from human being into robot when acting in business situations but human nature still exists (Pickton & Broderick, 2001). This shows that people should be affected not only by B2B marketing tools such as direct marketing and personal selling but also B2C marketing tools like emotional advertising (Blombäck, 2005). The purchase decisions in B2B takes place within groups and depends on the complexity of the product or services offering and industrial buyer mostly focus on the company's overall brand identity rather than products. Thus, reduce risks and uncertainties (Mudambi, 2002).

Purchase in B2B market are performed by group of professionals while in B2C markets purchases are done by family members and customers in consumer markets focuses in tastes whereas in business markets concentrates on functionality and performance (Anderson & Naurus, 2004). Relationship between buyer and seller is very important in B2B market and long term relationship tends to results into close personal relationship which actually are difficulty for competitors to interfere while in B2C market customer loyalty is not common (Ford et al., 2002; Lyly-Yrjänäinen, 2010). Furthermore, transactions in B2B markets take long time since it involves a lot of people and the supply chain is both long and complex.

Product Characteristics

The disparity in the buying process between B2B markets and B2C markets signifies the difference characteristics of products sold in both markets. As the decision making get complex and complex in business purchase market the same applies to products while in consumer purchase even a complex product like a computer or car tend to be based on simple criteria.

On the other hand, a simplest product in B2B markets involves many qualified experts as always it needs to be integrated into other large systems (Hague & Harrison, 2012). Products in consumer markets are standardized. Thus manufacturers are not focusing on individual needs but rather target market segments. Conversely, in B2B markets products are tailored. For example Intel sells customized micro processor chips to

different computer manufacturers and mobile devices according to their needs (Lyly-Yrjänäinen, 2011). For example, needs might include size, speed, performance and others. This rise the question whether market segmentation is possible and makes economic logic if every single customer has complex and completely different demands.

However, B2B markets are characterized by few customers but who buy products in larger quantities or make big deals as compared to consumer markets and mostly confirm the Pareto principle in customer distribution. Hence small number of customers dominates the sales revenue (Hague & Harrison, 2012). In addition, products in B2B market always have long term consumption as compared to consumer markets. Therefore, the product life cycle for industrial market is not as repetitive as what is experienced in consumer markets. Furthermore, availability and consistency delivery time for products are very crucial in B2B markets as compared to consumer markets due interdependence of B2B value chains (Raisch, 2001). For instance, in car assembly line only the shortage of nuts and bolts will affects the whole assembly process as no car can be finalized.

Market Structure

Industrial market structure differs from consumer market in many ways. Although industrial sellers do not sell directly to end consumer but managers in industrial market environment carefully observe the economic conditions to anticipate consumer buying patterns. The essence of assessing the customer of the customer's changing demand is due to the fact that demand in business products is based on "derived demand". Kotler (2003) states that derived demand separates industrial markets and consumer markets and described derived demand as the demand that is created and influenced by the demand of consumer goods. According to Lyly-Yrjänäinen et al. (2010), sales to consumer can be derived from the sales of that specific customer to its own customers. This implies that demand of products originates from the primary consumer since if the consumer does not demand or a small change in demand of products appears the whole value chain (i.e. manufacturer, retailer and suppliers) will be affected. Figure 4 below illustrates in the derived demand in the value chain.

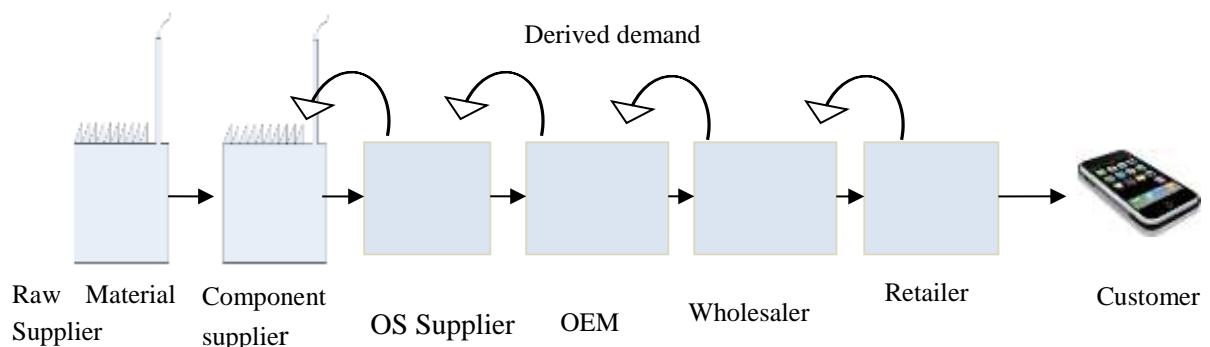


Figure 4. Illustrates the chain of derived demand (Adopted from Lyly-Yrjänäinen, 2011).

Furthermore, Jakobi (2001) added that industrial market prices are driven by derived demand whereas in consumer market the prices are controlled by elasticity of demand. However, the prices for industrial products are considered to be inelastic. Therefore, the rise of prices for a system component might not affect its demand or supply whereas in consumer market the situation is opposite as only small changes in prices will affect significantly the demand of the products. For instance the rise of voice call charges will significantly affect the average revenue per user (ARPU). This shows that there is high price sensitivity in B2C as compared to B2B markets.

Another characteristic of the market structure that differentiates the two market contexts is competition. The nature of the B2B market sharpens the type of the competition. According to Lyly-Yrjänäinen et al. (2011), few number of companies in B2B offer competing products which suits for oligopoly type of competition. Only few companies dominate the market. For example INTEL and Samsung Electronics are dominating the semiconductor industry, supply their microprocessor to PC manufacturers. On the other side, consumer markets is characterized by monopolistic competition in which many companies produce similar products and try to survive in the market by differentiation.

Sales and Distribution

Product offerings difference existing between industrial market and consumer market influences the kind of sales and distribution strategies (Rope, 1998). The large number of customers in consumer market calls for standardized products and long distribution channels. It would have been so difficult and inefficient to sell and deliver products directly to customers in consumer market. Therefore, manufacturer of consumer good uses intermediate channels such as wholesaler or retailers to reach mass end customers (Lyly-Yrjänäinen et al., 2010).

On the other hand, industrial markets are characterized by tailored products. Therefore, generally entail shorter and more direct channels of distribution (Dwyer & Tanner, 2006). For instance, system supplier sells the system to the Original Equipment Manufacturer (OEM) which might only involve two companies in the selling and distribution process. Consumer marketing aims at reaching as many customers as they can through mass media while in industrial marketing personal contacts play an important role in advertisement. According to Hutt & Speh (2004), industrial market companies allocate small budget for promotional and advertisement through direct mails, trade fairs and trade journals. However, personal selling is the most important way of marketing product in industrial market (Lyly-Yrjänäinen, 2010). In industrial marketing depend deeply on direct sales and sales people need to work closely together. A well designed advertisement can create a buyer in consumer market. Whereas in industrial market plays a different role and because of smaller number of customers in B2B, word of mouth has greater effect in creating a customer (Ford et al., 2002).

However, according to Anderson & Naurus (2004), promotion in B2B focus on performance and functionality and personal sales are the leading sales tool. Thus, personal sales communicate marketing messages effectively and allow personal feedback (Kotler et al. 2002). Generally, in marketing the main difference between consumer market and industrial market is that consumer market sale is to end consumer who is most likely influenced by factors such as family or friends although only a single personal make and pays for a transaction. Meanwhile in industrial market sale is done between firms or organizations or companies. Taking into account the complexity of the organization structure, sales in industrial market involves multiple decision makers. (Kotler & Pfoertsch, 2006)

2.1.4. B2B Market Segmentation

B2B markets concentrates on companies and organizations. Contrary, consumer markets focus on individual and division to market segments (Hague, 2007). According to Lyly-Yrjänäinen et al. (2010), the overall number of customers and tailored product offerings separate market segmentation process in both market contexts. With increasing consumer needs, demands and changing behavior, it is difficult to find only one customer type. In B2B market, every customer is treated uniquely and it is financially and time ineffective to offers tailored services or products to every customer. Therefore, it is useful to classify customers into market segments (Kotler & Keller, 2009 in Grosova, 2011). However, in B2B environment, market segmentation focuses on identifying suitable customer for firm's own competences (Lyly-Yrjänäinen, 2010).

Market segmentation in B2B markets has become an asset for a company and an essential part of path from company to customers especially in improving customer loyalty and better understanding of customers. The degree to which market segmentation is used in business markets depends on the company's need, type of activities and the changing environments in which it is operating (Hutt & Speh, 2001). Theory and practice of market segmentation research in B2B markets lags behind those of consumer market due to the following reasons: organization heterogeneity which makes it difficult to develop segmentation methodology that suits all environment (Freytag & Clarke, 2001), complex of buying decisions and lack of agreement on which criteria should be used to segment market and which should describe these segments (Webster, 1991).

2.2. Market Segmentation Frameworks

There are several criteria used in market segmentation as presented in different literature. However not all criteria discussed in different literature are suitable for B2B market segmentation (Jain, 1997). Jobber (2003) discussed the B2B segmentation approach based on criteria category developed in Wind & Cardozo's theory 1974. In

B2B market segmentation process, there are two stage procedures: (1) Macro segmentation and (2) Micro segmentation. Table 3 below illustrates the relationship between Macro segmentation and Micro segmentation variables.

Table 3. Relationship between Macro and Micro variables for segmentation process in industrial markets (Wind & Cardozo, 1974).

Macro Variables						Macro segmentation
Organization Size		Industry		Location		
Micro variables	Micro variables	Micro variables	Micro variables	Micro variables	Micro variables	Micro segmentation

Macro segmentation identifies subgroups within the markets that share similar general characteristics. Macro segmentation, the first stage centers on organizational characteristics and the situation which include criteria such as size, geographic location, industry (Hutt & Speh, 2001). Although, these criteria are based on macro segmentation always get criticized for being simple, biased, too highly aggregated and often fall short to identify new profitable and un-served market segments. Therefore, based on these critics it is proven that macro segmentation cannot uplift the segmentation results as competitive advantage for company (Mitchell & Wilson, 1998). However, Jobber (2003) made it clear that macro segmentation is just a first stage toward the final segment.

On the other side, Micro segmentation, the second stage, requires more comprehensive information, knowledge and observation within each micro segment which is selected from target macro segments. Micro segmentation focus the differences on specific buying characteristics, decision making process, organizational innovativeness, buying class, purchasing organization and decision making unit structure. The number of levels or stages in the segmentation process depends on the available suitable information and the purpose of the segmentation by itself. The most important criteria for industrial market segmentation are based on macro segmentation. Macro segmentation initiates the breakdown of the markets into more specific groups which ends up into micro market segments.

Figure 5 below illustrates the categories of B2B market segmentation criteria.

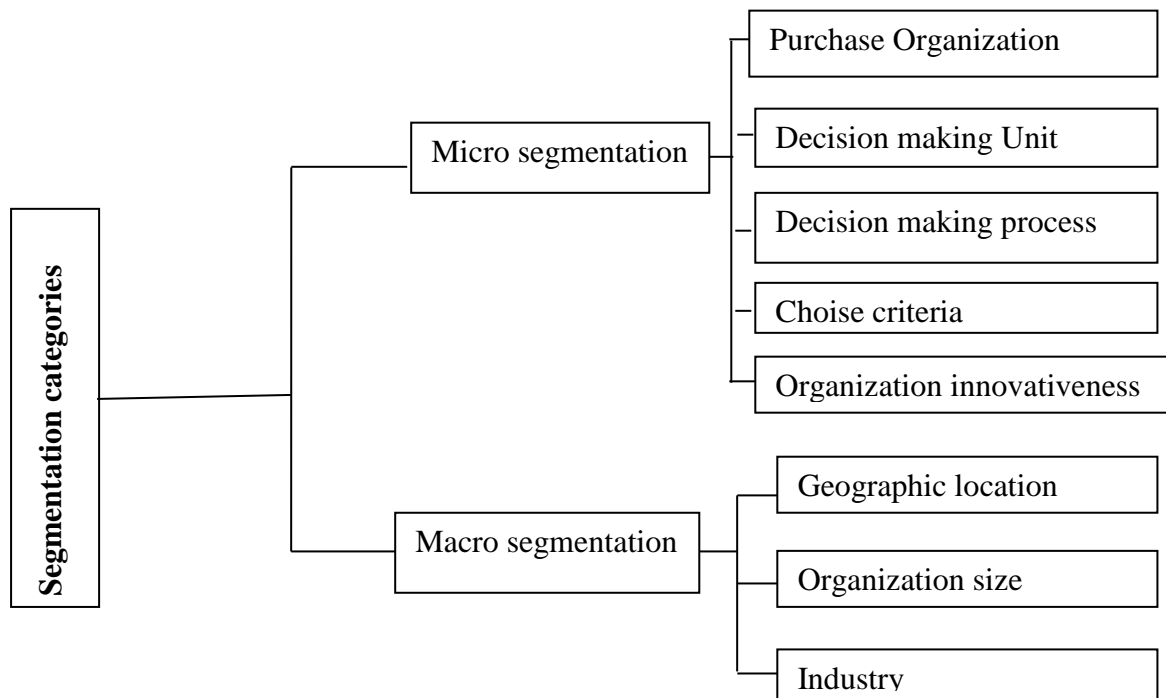


Figure 5. B2B Market Segmentation criteria (modified from Jobber, 2003).

First, geographic location is a general characteristic of the market. However, it can be used a basis for differentiating market strategies and purchasing power if it happens that different location possess different purchasing power settings. For instance, in some places there is less bureaucratic in their purchasing processes as compared to other places. Thus, makes the criteria very important and calls for marketers and managers in industrial markets to put more attention on it. Second, always large organizations have greater potential orders and well developed processes and tailored needs. In many companies such organizations with great orders are treated as a key account simply because they buy in bulky. Bulky purchases ensure economies of scales and benefits from discounts arrangements always associated with huge volume. However, this requires strong sales forces personnel with strong negotiation skills since bulky purchase demand more discount from the customer. Therefore, it is very important for the managers to identify different companies according to their sizes. The size of the company can be determined by revenue, sales figure, and number of employees, history and reputation and other factors.

Third, Industry variable plays a big role in the macro segmentation. Some of the products or services can be applied to different industries depending on the needs. Therefore, industries differ by the requirements on product or services based on their needs. For example Healthcare sector can be further segmented into hospitals, dispensaries, pharmacies, health centers, private and government owned. Each segment demands different products or services though they all fall under the umbrella of

Healthcare sector. Further division of the industry sector depends on the requirement of the products or services and the specific need for a given segment.

On other side, Jobber (2003) mentioned five variables for micro segmentation: First, decision making unit consist people who influence supplier's choice, in any organization decision making unit dictate purchasing process. This is triggered by purchasing policy, strategies and attitude toward vendors and risks associated. For instance, an organization may introduce a policy that controls and govern the purchasing processes. With this variable the closeness of the people representing different organization may be used for segmentation and this may be determined by a continuum from long term partnership to transaction relationship. These variables help to segment organizations for effective marketing communications. Second, decision making process can be time consuming or relatively short time depending on the complexity of the purchasing process. Often large decision making units takes long time for decision making process due to the facts that large and complex decision making units consists a lot of people for approval.

Third, purchase organization can be centralized or decentralize thus, influences purchasing decision. Centralized purchasing involved a single centered located decision making unit where all the decisions emanates. On the other side, decentralized purchasing disperses the purchasing decision making into local authority. For instance, a global firm delegate purchasing power to geographical sites e.g. countries or regional. Therefore, purchasing organization characters creates different buying buyer behavior hence require specific marketing strategies. Fourth, choice criteria, different buyers have different criteria when evaluating the suppliers. For example, some buyer selects vendors based on quality, prices and performance/productivity. Therefore, marketing and sales people need to understand thoroughly the needs and demands from each market segments which makes criteria choice a very important aspect for market segmentation. Fifth, organization innovativeness, the degree of innovative differ from one firm to another, sometimes this indicated firm capability which draws different attentions from the suppliers. That means a firm with high degree of innovative will demand different marketing strategies as compared to a firm with low degree of innovative.

Bonoma & Shapiro (1984) continued the development of micro segmentation stage and centered the variables into layers (i.e. inner and outer layer). According Bonoma & Shapiro (1984), the outer layer is the most easily accessible and target segments are identified based on available secondary data. Managers are advised to start with easily implementable variables such organization size, geographic location, industry and afterward proceed inward to situational factors and personal characteristics only if company's objectives are meet (Dibb et al., 1997).

Both macro and micro segmentation variables were highlighted in the nested approach which includes five layers as shown in the Figure 6 below.

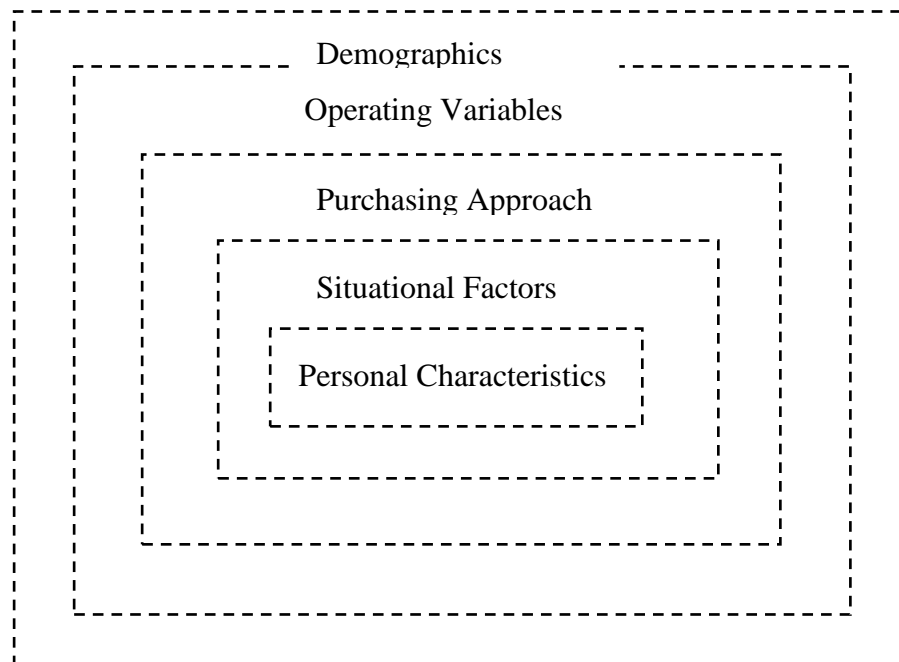


Figure 6. Five layers of B2B market segmentation variables (adopted from Bonoma & Shapiro, 1984).

Segmentation process becomes complex as it get deeper and deeper in the inner layer because information about micro variables is not easily available. Therefore, the target segment from inner layer most likely provides competitive advantages. Kotler & Keller (2009) posit slightly different idea on grouping business to business market segmentation variables, though the roots of the variables are still close to those discussed by Jobber (2003).

According to Kotler & Keller (2009), market segmentation variables are categorized into the following categories as presented in Figure 7 below.

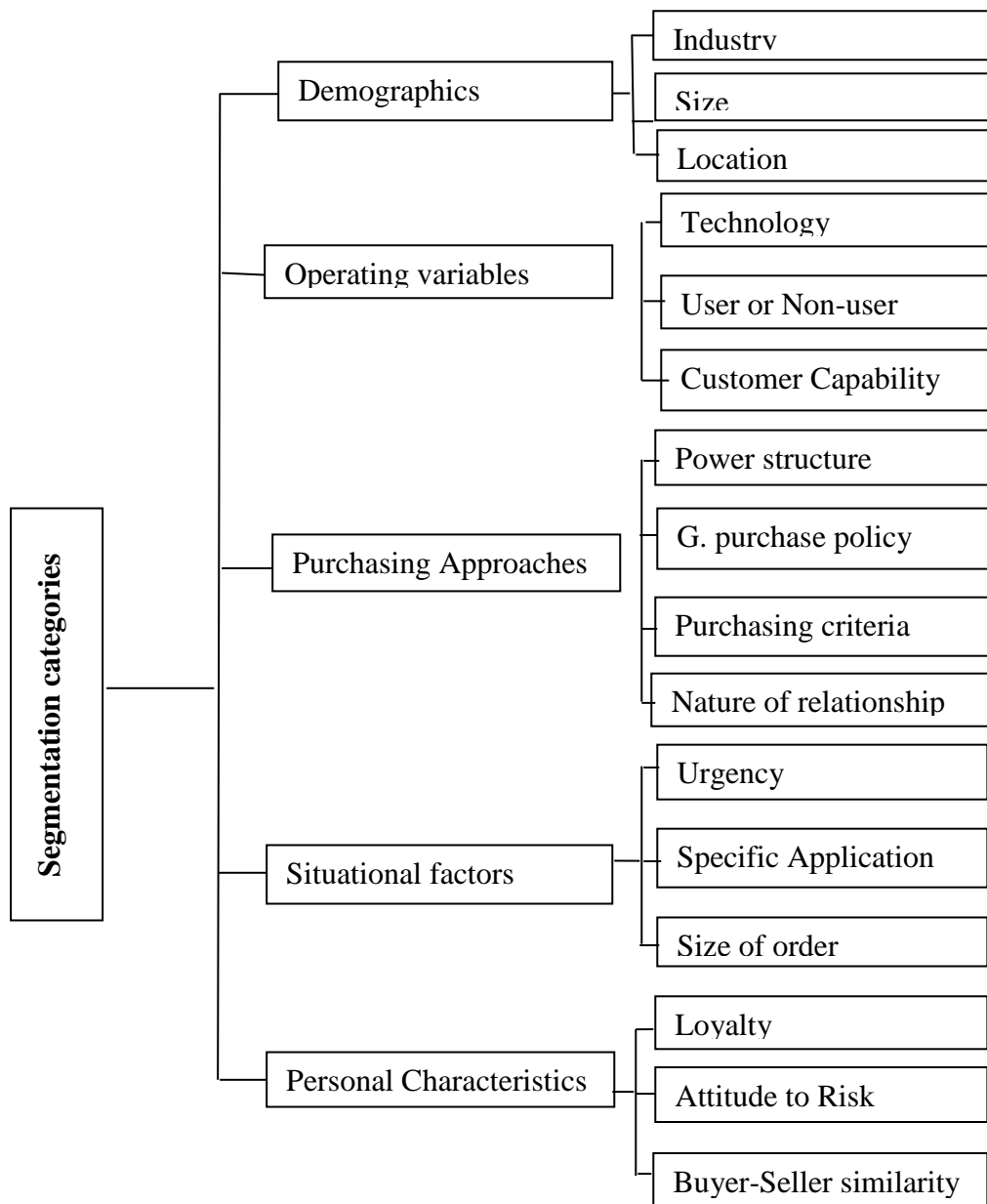


Figure 7. B2B Market segmentation variables (adopted from Kotler & Keller, 2009).

Although there are limited literature discussing B2B markets as compared to consumer markets. Available literature have tried to explore different criteria that help in segmenting industrial markets. Table 4 below combined ideas and criteria discussed by both Kotler & Keller (2009) and Jobber (2003) and provides examples of variables that can be used by managers in industrial markets.

Table 4. Showing variables and examples in Macro segmentation and Micro segmentation in B2B markets (adopted from Jobber, 2003; Kotler & Kotler, 2009).

Variables	Examples	Author(s)
Macro segmentation		
<i>Organizational size</i>	Large, medium, small	Jobber, 2003; Kotler and Keller, 2009
<i>Industry</i>	Healthcare, banking, electronics	Jobber, 2003; Kotler and Keller, 2009
<i>Geographic location</i>	Local, national, regional, global	Jobber, 2003; Kotler and Keller, 2009
Micro segmentation		
Operating Variables		
<i>Technology</i>	Innovator, follower, laggard	Kotler and Keller, 2009
<i>Product usage</i>	Heavy user, medium user, light user, nonuser	Jobber, 2003
<i>Customer capabilities</i>	Dependency capability, independent capability	Jobber, 2003; Kotler & Keller, 2009
Purchasing Approaches		
<i>Purchasing organization</i>	Centralized, decentralized	Jobber, 2003
<i>Power structure</i>	Manufacturing dominated, financially dominated	Kotler & Keller, 2009
<i>Nature of existing relationship</i>	Long term or transactional relationship	Kotler & Keller, 2009
<i>General purchasing policies</i>	Letting, service contract, bidding	Kotler & Keller, 2009
<i>Purchasing criteria</i>	Value in use, delivery, price,	Kotler & Keller, 2009
<i>Buy class</i>	New task, straight rebuy, modified buy	Jobber, 2003
Situational Factors		
<i>Decision-making process,</i>	Long, short decision	Jobber, 2003; Kotler & Keller, 2009
<i>Specific application</i>	Specific application for product, All applications	Jobber, 2003; Kotler & Keller, 2009
Personal Factor		Kotler & Keller, 2009
<i>Decision-making unit structure</i>	Complex, simple	Kotler & Keller, 2009
<i>Buyer-seller similarity</i>	Companies with similar values, different values	Kotler & Keller, 2009
<i>Attitude toward risk</i>	Risk-taking, risk-avoiding customers	Kotler & Keller, 2009
<i>Loyalty</i>	High loyalty, low loyalty to customers	Jobber, 2003; Kotler & Keller, 2009

The list of criteria discussed in Table 4 above helps to identify market homogeneity from heterogeneity groups. Different segmentation criteria are used to provide more information about the market. However, the challenge to managers is on how to identify different market segments that have not been identified by competing companies. Market segmentation process ends up with several market segments. However, neither big companies nor small companies have enough resources to explore and exploit market potential in all the segments. Smart companies select few manageable segments that align with capabilities and objectives of the company.

2.3. Market Targeting

Market segmentation process has played an important role in marketing activities particularly on better market targeting and positioning decisions. Because customers are different has shown in the previous Section, no any organization can have resources and capabilities to serve all customer segments effectively at once. Therefore, companies narrow down their segments choices in order to be at a competitive edge (Croft, 1994). Figure 8. Present targeting among different segmented markets.

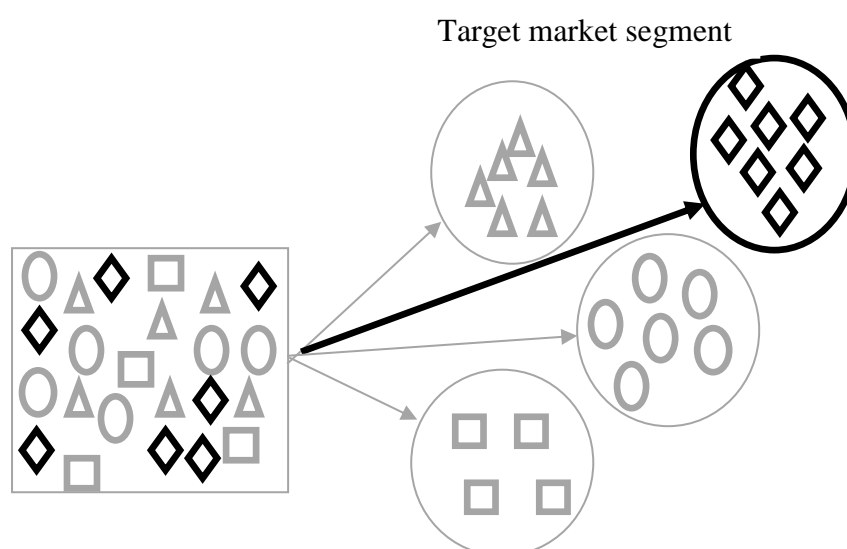


Figure 8. Market Targeting among the segmented markets.

Marketers need to understand their customers intimately through market segmentation and select the right segment which a company will target and position itself well in the market. In industrial marketing, successful targeting and positioning is crucial due to the fact that the number of customers is smaller than in consumer market and no single company is ready to lose potential customers (Rope, 1998). Armstrong & Kotler (2000) emphasize more on targeting the right segment that fits the company's capabilities and resources. According to Friedmann et al. (1987), targeting involves evaluation of various market segment identified in the market segmentation and determine which one

a firm can compete for. Evaluation always is based on economic attractiveness, resources and capability as well as company's objective (Kotler, 2003).

In industrial market is it better to do business with firm for a long time instead of falling into transactional attractive deal. Long term relationship and loyalty most likely turns to profitability in the future (Hunter, 1997). As it was discussed in Section 2.2 of this Chapter, the criteria for assessing attractiveness of the target market segment vary depending on the targeting approach employed by particular organization. Kotler (2003) proposed five selection patterns that can be used to evaluate different market segments. The following are the list of five target marketing approaches:

- Single segment concentration
- Selective specialization
- Product specialization
- Market specialization

First, in single segment concentration, a firm focuses on serving one specific market segment. This approach enable a firm to acquire extensive knowledge on segment's needs and achieves a strong presence in the chosen market segment. Concentrating on single market ensures cost savings in different marketing activities such as distribution and promotions. However, single segment concentration is vulnerable to competition threats as for new entrant company might erode the market share of the existing company.

Second, selective specialization put efforts on attractive several segments depending on the company's resources and capability. Selective specialization limits the threat of competition by diversifying and serving several segments which provides a wide range of switching options in case of stiff competition. Third, in product specialization companies manufacture products that can be customized to different customer groups and sell them to several market segments. Thus, there is a possibility to make a strong brand image. Fourth, in market specialization a firm finds a way of serving different needs arising from the same customer market segments (Kotler, 2003). Finally, full market coverage approach tries to serve all customer groups with its product portfolio (Kotler, 2003).

2.4. Positioning

Positioning has been regarded as one of the most difficulty concept in marketing (Bhat et al., 1998). In every study on the concept has added contradictions which have contributed to misunderstandings between scholars and practitioners due to lack of

mutual agreement on the exact definition of positioning (Gabriel-Ritter, 1993; Rigger, 1995). Therefore, no single definition has been anniversary accepted taking into consideration that the clear boundary of the concept is yet to be set (Blankson & Stavros, 1999). Figure 9 below Illustrating positioning in a target market segment.

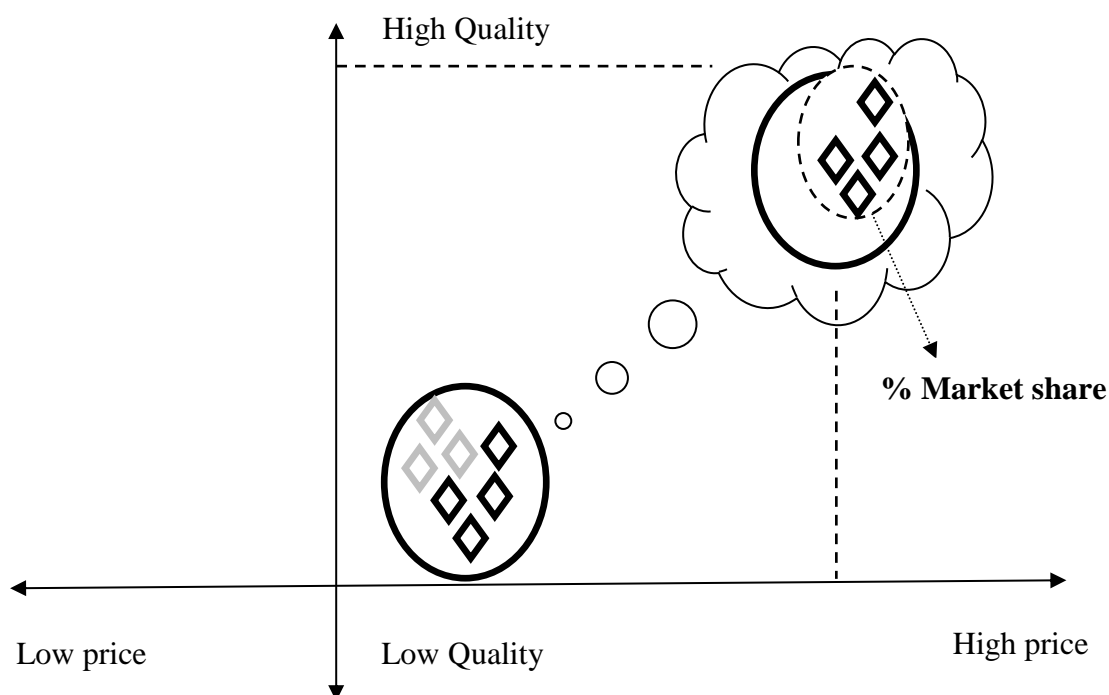


Figure 9. Illustrating positioning in a target market segment.

Several authors came up with different definitions. For instance, Trout & Rivkin (1996) defines positioning as concentration on an idea or even a word that describe an organization in the minds of consumers. Keller (2003) defines positioning as:

“ identifying the optimal location of a brand and its competitors in the minds of consumers to maximize potential benefit to the firm.”

Kotler (2003) added more dimension on that definition by defining positioning as:

“act of designing the company’s offering and image to occupy a distinctive place in the mind of the target market. The end result of positioning is the successful creation of a customer-focused value proposition, a cogent reason why the target market should buy the product.”

Furthermore, Schiffman & Kanuk (2007) postulate that

“Positioning conveys the meaning of a good or service in terms of how it fulfills needs of consumers.”

Generally, from these few definitions it is evidently presented that positioning is the management that creates an association of mindset of consumer relatively to the competitor. And all marketing activities that potentially creates or strengthen consumer's perceptions fall under the umbrella of positioning (Solomon et al., 2006). Positioning business products offers challenges and subtle than in consumer products. Advertising products in consumer markets plays a crucial communication role in positioning a company's image in the minds of customers.

On the other hand, personal selling, sales promotion, trade shows and advertising communicates positioning in industrial markets products. Positioning is a critical for a new product or services and the new product should be positioned in such a way that it delivers benefits more than competitor's product. According to Kotler & Keller (2009), perfect product positioning helps companies in developing and managing their market strategies, eventually, leads to customer focused value proposition. After identifying the target market segment, the challenge to marketers is to position the product or services so that to meet the needs and wants of the target group (Baines et al., 2008).

In order to develop a sustainable position, the target market must be studied thoroughly to understand how competitors position their product as well as the tangible and intangible attributes of the product customers are looking for (Kotler, 2009). The position which can be occupied by a product or service in the market is based on two dimensions. Positioning dimension can be set depending on the business strategy of the company. For instance a firm might decide to position a product based on price and quality. As shown in the Figure 9 above, not all customers in the target market fit the company offering.

Nevertheless, the company positioning will help identify the only potential customers, thus provide an estimated potential market share. In this case the company objective is to introduce a product that will be perceived by customers as of high quality and very expensive as shown in the Figure 9 above. Therefore, a company has already identified the potential customers to be those who will perceive a product or service to be of high quality but tagged with expensive price. Depending on how the company will position the products or services in the minds of the customer's, the process affect sales and hence market share directly. Ries et al. (1981) said that "*positioning is not what you do to a product; it is what you do to the mind of a prospect.*" Therefore, well designed marketing communication is vital when positioning a product in the market.

This Chapter has extensively discussed marketing process by putting much concentrtrion on market segmentation frameworks, market targeting, positioning, differences existing between B2B and B2C markets and much emphasis directed to market segmentation in Business to Business markets. Thus, familiarizing the

managers/entrepreneurs with good business practices of knowing the customer's needs wants and demands. The next Chapter discusses Mobile services.

3. MOBILE SERVICES

3.1. The S-Curve and Technology Discontinuities

In recent decades, the rapid advancement of technology has created demands for thorough technological analysis across all the industry. Technology performance improvement is now regarded as competitive weapon in the market. Therefore, the need for integrating technological analysis in the strategy designing and planning has been brought into attention (Nieto et al., 1998). Over many years S-curve has been at a core of many management science concepts. Technology's performance is sketched in S-curve shape in the process of monitoring performance improvement over life time (Ayres, 1994 in Schilling, 2009). S-curve has been often used by managers to demonstrate the existing tension between potential growth and saturation effects of the technology. Thus, S-curve has dominated other technological performance analysis models in the literature (Nieto et al., 1998).

The main focus has been to model three areas namely diffusion of technology, technological projections and technological substitutions. According to Nieto et al. (1998), often the S-curve representing technological changes is plotted with performance (such as capacity, power, speed, etc.) against time. Any technology starts with slow performance improvement in the early stages and later after exploring different approaches for technology's performance improvement, the rate of improvement get accelerated. Nevertheless, at some point it starts flattening and slowing down in most of cases it marks the technological performance limit. Figure 10 below presents an S-curve illustrating performance of technology plotted against time.

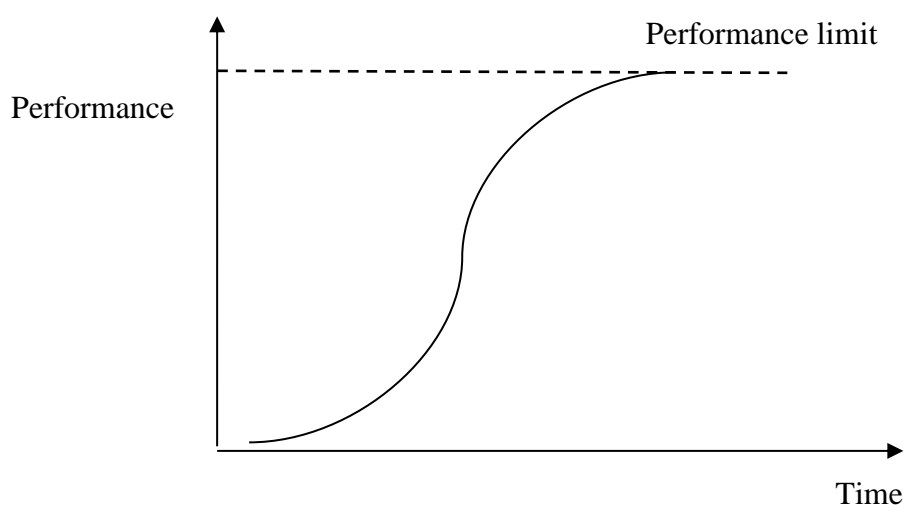


Figure 10. S-curve presenting technology evolution (Bowden, 2004).

The S-curve has been a descriptive tool for origin and evolution of technologically discontinuous and radical innovations. This process suggests that technology performance moves along an S-curve until technology limitations occurs (Rossana, 2001). Technology evolution takes places in different phases and the changes occur either continuously or discontinuously. According to Dedehayir (2011), although the two evolution process differs, but they are not mutually exclusive. Therefore, it is most likely that technology evolves over period of time in a slow and gradual style while sometimes it evolves radically. Weather a technological change is regarded as continuous or discontinuous it depends on the time it takes to obsolete the old technology. Anderson et al. (1990) state that technology which evolves in incremental changes without breakthrough is regarded as continuously changing technology. According to Anderson et al. (1991), technological discontinuities can be defined as *“those rare, unpredictable innovations which advance a relevant technological frontier by an order-of magnitude and which involve fundamentally different product or process design”*.

Technology discontinuity is regarded as the main trigger of changes in the fast evolving industries (Anand et al., 2010; Benner, 2010). Therefore, technological changes drives firm performance and elicit industrial evolution. The incremental change symbolized by the S-curve, reach to an end with appearance of new S-curve and that period is termed as discontinuity. The dominant design is the chosen and the new S-curve illustrates the new technology over time. Figure 11 below presents S-curves illustrating technological discontinuities

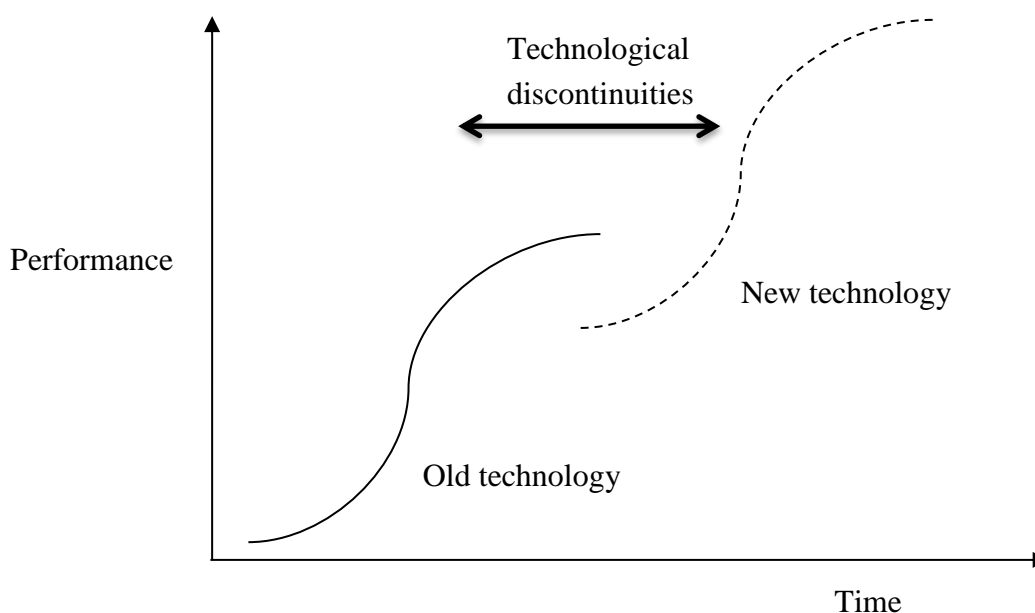


Figure 11. S-curves illustrating technological discontinuities (adopted from David, 2012).

Therefore, it is possible to observe a series of S-curves which signifies improvement of a particular technological performance parameter (Dedehayir, 2011). The path of the technological life cycle is always unpredictable and it may be prolonged by sustaining innovations or disrupted by emergence of new technology. Disruptive technology comes up with a new technology which out-performs the existing technology. Thus, presents benefits to customers and provides performance improvement rapidly (Dalum et al., 2002).

3.2. Evolution of Mobile Technology

Evolution of mobile technology has been regarded as the next wave for Information Technology revolution. Mobile technology includes technological for connectivity infrastructure and mobile devices. Technological infrastructure such as Wireless Application Protocol (WAP), Bluetooth, General Package Radio Services (GPRS) and mobile devices includes mobile phone, PDA, Laptops computer (Nah et al., 2005). By the convergence of computing and internet into wireless networks, mobile technology enables users to have information and application access from anytime, anywhere and conveniently. Thus, provide flexibility in communication and information sharing. (Davis, 2002; Sheng, 2004). Any technology as it evolves follow technological life cycle. Over the last decades, development of mobile technologies has evolved and changed the traditional telecommunication industry drastically. Figure 12 below illustrates the evolution of mobile technologies alongside with mobile services.

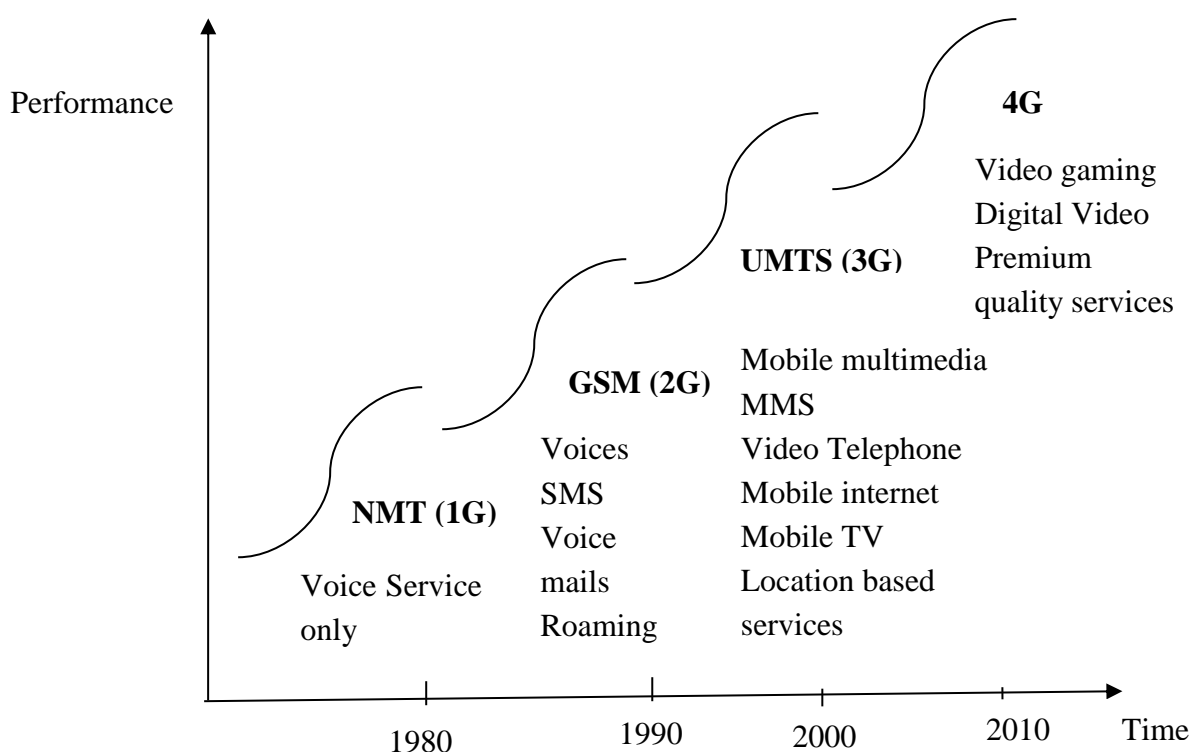


Figure 12. Mobile Technology and mobile services evolution (adopted from Dalum et al., 2002).

The rate of diffusion of new technologies has influenced the fast adoption of variety of mobile services. Consequently, some studies has concentrated on the adoption of technology and mobile services in the marketplace (Kim et al., 2007) while others focused on technological progress (Pagani, 2004). Until now there are four generations of mobile communication networks. The remarkable changes have occurred from the first generation (1G) to fourth generation (4G) in mobile communication industry. First generation (1G) consisted analog systems in which Nordic Mobile Telephone (NMT) was successful in the market. Wireless telephone technology was analog cell phone that was launched in 1980's. The main services provided in this generation were voice calls and 1G network had a low traffic capacity, unreliable, poor quality voice and security uncertainties. This cycle lasted for almost a decade and within this period there were incremental improvements such as from NMT 450 to NMT 900 MHz (Dalum et al., 2002). Emergence of GSM technology in 1990 replaced NMT particularly in Europe.

According to Bower & Christensen (1995), GSM shifted the mobile communication technology from analog to digital; this technological disruption caused the change of infrastructure in the whole industry. GSM become a standard technology, eventually accelerated the mass adoption of mobile phone and fast growth of the industry. Not only GSM was disrupter to NMT but also the fixed line telephone and satellites telephone networks as well as telecom services provision. However, Gruber & Verboven (2001) postulate that *“the fixed network is largely viewed as a complement to mobile phones.”*

This argument was endorsed by Ahn & Lee (1999) with a conclusion that

“the number of fixed lines per person has a positive influence on the probability of mobile telephone subscription.”

This can also be supported by the fact that until now the fixed line telephone is still in use specifically in the offices, although it has lost popularity significantly. GSM technology engineered the rise of mobile services such as SMS, emails, voice mails and others. GSM technology life cycle has passed into several incremental improvements.

For instance, in 1996 European Telecommunication Standards Institutes decided to upgrade 2G to 2G + which already were associated with some features of 3G. These features include General Packet Radio Services (GPRS) and Enhanced Data Rates for GSM Evolution (EDGE) (Kaaranen et al. 2001). The data rates in 2G+ are approximated to be 384kb/s. During evolution of 2G to 3G several wireless systems such as WLAN, GPRS, and Bluetooth were developed. These systems were designed independently and purposeful for different data rates and users (Hui & Yeung, 2003). Third generation 3G was launched in 2000's and it offers 2 Mb/s data rates depending on mobility. 3G provides multimedia services such as video communication, Mobile

internet, Mobile TV and offers high speed internet access and ensure reliability (Toshio et al., 2005). The 3G systems support all services such as WAP and GPRS.

There are recent releases of 3G which denotes 3.5G and 3.75G, these incremental improvements provides mobile broadband and high data rates to Smartphone and mobile modem to laptop computers. In the fourth generation (4G), the successors of 3G improve the data rates and solve the problems related to 3G. Fourth generation means different things to different people. There high expectation from 4G especially on high capacity data rates and new mobile internetworking and introduction of new wireless technologies (Gazis et al., 2003). 4G systems provide mobile ultra- broadband internet access. 4G supports applications such as mobile web access, IP Telephone, gaming services, video conference and high definition mobile Television. Fourth generation is expected to broadly integrate wireless solution and support global mobility and customized personal services (Gazis et al., 2003).

Parallel evolution of mobile terminals, mobile capacity and broadband network has promised mobile device user internet experience that surpasses home based internet connection (Kimmel, 2012). As shown in Appendix 2, evolution of mobile communication indicates that main emphasize is based on integrating most of wireless solutions and come up with a single standard which support the global mobility. Not only common standard but also improved data rates transmission which enables multimedia contents to be shared across different mobile devices. Evolution of mobile communication technologies has influenced the advancement of other technologies such mobile services technologies, mobile services as well as mobile devices (i.e. from basic GSM phone to Smartphone). Advancement of mobile technologies contributes to the adoption of mobile services.

3.3. Mobile Services Characteristics

The term Service covers a heterogeneous range of intangible products and activities that are difficult to sum up within a simple definition. However, several scholars have tagged differently meaning on service depending on the context. Services have been studied in various fields such as marketing (Lovelock & Gummesson, 2004; Gronroos, 2007) and operation management (Johnson et al., 2008). Recently, service has emerged as a cross disciplinary field that drive innovation, competition and quality of life (Vuolle, 2011). According to Lovelock & Wirtz (2007), services refers to economic activities offered by one party to another, most commonly employing time based performances to bring about desired results in recipients or other assets for which purchasers have responsibility. Kotler et al. (2002) added that services are intangible and does not result to ownership of anything. Teboul (2006) postulates that service is a front stage in which delivery involves a contract, an interaction between the service provider and the customer. Therefore, customers are integrated in the service delivery as

they are transformed or simply interacting during the transaction. Thus, service can be seen as a perspective on value creation by the customer especially value in use (Sandström, 2008). Gronroos (2000); Kotler & Keller (2006); Lovelock & Wirtz (2007) posit four attributes that characterize the nature of services: inseparability, heterogeneity, intangibility and perishability.

Mobile data services business is now driving the competitive pressure with the influence of increasing individualized customer needs and growing customer demands that enforces changes in competitive environment practically in all business sectors. The future of mobile communication swings to data services as voice services are edging to saturation (Soininen, 2005; Calsson & Walden, 2006). According to Hans Vestberg, Ericsson President and CEO

"This is a significant milestone with some 400 million mobile broadband subscriptions now generating more data traffic than the voice traffic from the total 4.6 billion mobile subscriptions around the world." [March 23 2009].

Recent convergence between telecommunication and mobile technologies has put mobility on services. Yet there is no conceptual agreement on the term "*Mobile Services*". Therefore, the term Mobile services can be defined in different ways depending on the context (Pihlstrom, 2008). Nordman et al. (2003) defined mobile service as "Something that content provider can charge the mobile user for taking part in". Pihlstrom (2008) defined mobile service as any service that can be retrieved via mobile device and is delivered through the interaction between organization and customer. In other words mobile service is any service that end user with a mobile device receives from a network operator or service provider. In addition, Mobile services offer real time and on demand access to contents which provides solution to customer's problems, needs, add value and create customer satisfaction. (Kleijnen et al., 2007; Vuolle, 2011)

These definitions draw attentions on the mobility and service characteristics in the interaction between service provider and the customer aiming at creating customer value to end user or customer. Mobile services can be data or voice based communication that provide value added services, content and application accessed by user through mobile device (Componovo & Pigneur, 2003). In a summary, mobile services can be defined as any service ranging from private to public service that is provided via mobile devices which enables a customer to access that service at any time, at anyplace and conveniently.

As stated earlier in this research study, mobile services business is a young promising industry which needs to be researched. However, few researchers have invested their time and resources on studying the nature and characteristics of mobile services.

Componovo & Pigneur (2003); Balle (2012) summarized the main characteristics of mobile services business.

Table 5. Below indicates main characteristics of mobile services.

Mobile Service characteristics	Explanation	Author
Fast processing	Allows user to process a transaction much fast. A customer receives a product instantly through downloads/emails or any electronic delivery.	Balle (2012)
Mobility	Mobility brings in convenience, free movement, localization, ubiquity and reachability	Gumpp & Pousttchi (2005)
Reducing Business cost	Reducing overhead cost. Mobile services enable easy and quick information sharing to different level of management	Balle (2012)
Business model	<i>“... the creation of a business model strongly resembles the writing of a new story. To a certain extent of course all new stories are variations to older stories. They are new versions of the universal themes on which human experiences are based. Similarly, all new business models are variations to the general value chain that forms the basis of all businesses”</i>	(Componovo & Pigneur (2003); (Magretta, 2002)
Network effects	Mobile service business explores the network opportunities. A third party gain value from transaction and the consumption of externality affects third party's consumption function.	(Componovo & Pigneur, 2003).

3.4. Acceptance of Mobile Services

Several researchers and practitioners have studied factors that affect adoption of mobile services extensively using the traditional acceptance theories such as theories of Innovation Diffusion (Rogers, 2003), Technology Acceptance Model (Davis, 1989), Unified Theory of Acceptance and Use of Technology (UTAUT), Technology

Readiness (Parasuraman et al., 2001). Most of research relates mobile services to technology. And academic literature in mobile field focus on Information systems (Pihlstrom, 2008). Specifically, Brown et al., 2003; Luarn et al., 2005; Tuunainen et al., 2008 used the Diffusion of innovation (Rogers, 2003) model for identifying factors for adoption of mobile financial services. Mobile services acceptable include both mobile devices and mobile services (Dholakia et al., 2004). In this study the main concentration is on Technology Acceptance Model (TAM).

TAM is the most popular approach that has been often used by many researchers in identifying factors that influence consumer acceptance of mobile services and related applications (Kleijnen et al., 2007; Pihlstrom, 2008; Chung & Kwon, 2009; Gu et al., 2009). Hence, acceptance of mobile services possibly is related to the acceptance of mobile technology (Carlsson et al., 2005). TAM includes factors such as usefulness and easy to use which influences the use of technology directly. Perceived usefulness is theoretically related to productivity and performance (Gebauer, 2008; Van de Wijngaert & Bownman, 2009).

According to Davis et al. (1989), perceived usefulness can be defined as “*a prospective user’s subjective probability that using a certain system applications will increase his or her job performance within organization context*”. In Technology Adoption Model, perceived usefulness is assumed to influence the perceived easy to use variable, since most of the useful technology or systems or services are also perceived to be easy to use (Wahid, 2007). In addition, Davis et al. (1989) described perceived easy to use as “*the degree to which a prospective user expect the target technology or system or services to be free of efforts*”. As the technology or system become easier to use the higher adoptions rates it acquire from the users (Wahid, 2007).

According to Karahanna et al. (1999), TAM cannot estimates the continual use of mobile services since technology acceptance and continual use are two sides of the same coin. However, other research reveals that usefulness and customer satisfaction are dominant drivers for continual use of mobile services (Liao, 2007). Pihlstrom (2008) states that usefulness is the one of the aspects in perceived customer value. And customer value is perceived with a customer that has experience of using a technology or service because perceived value comes up after using a services or technology. Therefore usefulness has been identified as a key driver for customer behavior. In the study on how different users are using mobile services in their everyday life and what factors influence the usage, Kaasinen (2005) proposed enhanced Technology Acceptance Model for mobile services.

Figure 13 below present Technology Adoption Model (TAM).

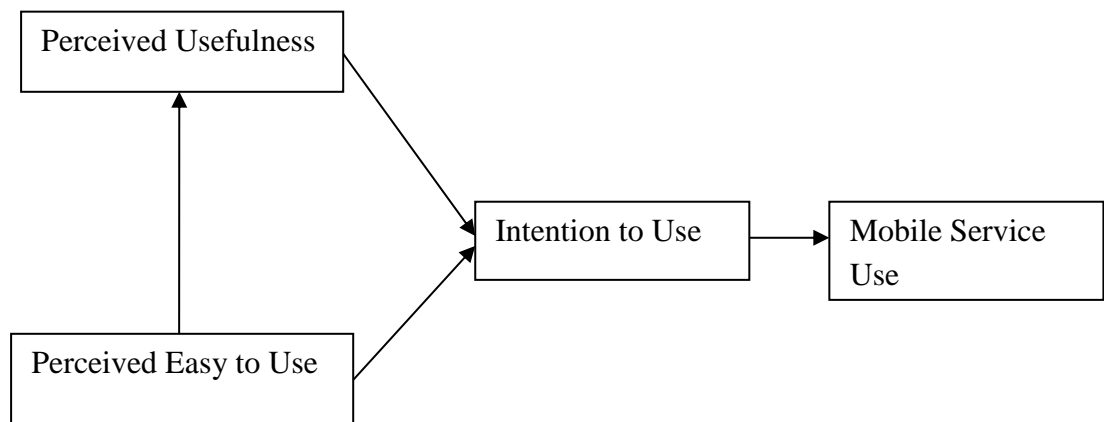


Figure 13. Technology Adoption Model (adopted from Davis, 1989).

The enhanced model includes trust and easy of adoption variables. According to Kaasinen (2005), perceived value, perceived ease of use and trust affects the intention to use mobile services. The enhanced model suggests that in order for user to use a mobile service via a mobile networks the service provider need to be trusted. Therefore, trust came up as an issue toward mobile services acceptance (Gefen et al. 2003). In addition, the enhanced model added perceived easy of adoption to the original TAM. According to Kaasinen (2005), always mobile services users face challenges on the installing or putting the services in to use. This is what was mentioned in the enhanced model as perceived ease adoption of mobile services. This variable was not included in the original model simply because the original TAM is based on information systems which always are installed therefore end user never get involved in the configurations hustle. Figure 14 below presents the enhanced Technology Acceptance Model for mobile services.

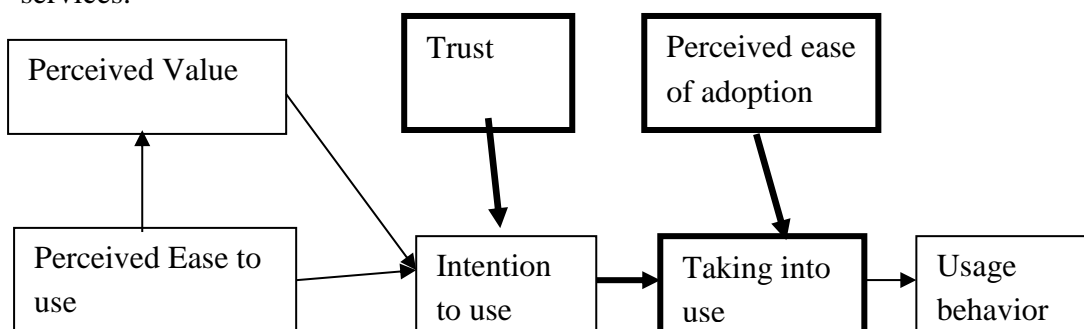


Figure 14. Enhanced Technology Acceptance Model for Mobile services (Modified from Davis, 1989 in Kaasinen, 2005).

The variables discussed in the enhanced Technology Acceptance Model for mobile services will help to guide the designer and mobile service providers to come up with

services that suit the customer requirement hence improve adoption rate of mobile services. Eventually, increases market share and revenue as well as positioning a company at a competitive edge.

This Chapter has extensively discussed the mobile services the main emphasis on technological change , evolution of mobile technologies, mobile services characteristics and factors that influence acceptance of mobile services in the community and at the business level. The next Chapter will analysis both literature discussed in Chapter 2 and Chapter 3 and then construct a conceptual framework for estimating potential business based on the literature covered in these chapters.

4. ESTIMATING POTENTIAL BUSINESS OF m-SERVICES

4.1. Estimating Business Potential of Segments

Estimating and analyzing potential business for a specific product or services is the crucial step toward deciding for establishing a new business or expansion. There is neither a clear single tool nor guaranteed exact estimates of potential business in a specific market or industry (McConnon, 2000). Estimating market potential is a challenging process due to fact that it takes place in data vacuum. For instance, in most developing countries accessing the secondary data it is a hustle task, either data are not available or unreliable (Arnold, 2004). However, experienced international researchers claim that there are still ways of getting closer to the market data required to support meticulous and comprehensive analysis (Arnold, 2004). Substantiating market potential and quantifying opportunity in a market can be vital to company's success. Special attention should also be given to qualifying the market opportunity (Cavusgil, 1997).

Literature review indicates that few studies that have been done on the topic of estimating market potential and most of them have dedicated more efforts on market entry modes. Few studies have cropped up different tools for assessing the market potential. For example, Arnold & Quelch's (1998) market demand-driven model, Hofstede's (2001) cultural dimensions to measure cultural distance and Porter's (1990) competitive analysis of an industrial sector (Sakarya, 2006). Approaches and tools for estimating market potential varies from qualitative to quantitative (Sakarya, 2006).

In traditional approaches for market potential assessment countries are ranked based on aggregate market potential and overall attractiveness. For marketers looking to expand abroad, different studies provides market screening models for evaluating and selecting potential market (Papadopoulos et al., 1988; Cavusgil et al., 2004). Always market dynamism and future potential resulting from rapid environmental change pose challenges to the market potential analyzing tools. Cavusgil (1997) proposed an indexing approach for estimating market potential in emerging market. Indexing approach comprises dimensions and measures for estimating market potential as summarized in the Table 5 below:

Table 5. Showing the dimensions and measures for potential business (adopted from Cavusgil, 1997; MSU-IBC, 2011).

Dimension	Measure	Country
Market size	Total population	
Accessibility	Population distribution	
Market consumption capacity	Size of the middle class	
Market growth rate	Average annual growth rate of industry	
Market intensity	Increasing demand of product	
Estimates of GNP per capita	Private consumption expenditure per capita	
Market Receptivity	Average annual growth rate of imports	
Economic Freedom	Taxation policy, Capital flow and Foreign, Investment	
Commercial Infrastructure	Internet users (per 100 habitants)	
	Main Telephone lines (per 100 habitants)	
	Cellular mobile subscribers (per 100 habitants)	
	Paved road density (km per million people)	
	Percentage of Households with TV	

First, market sizing can be defined as estimation of number of potential buyers of a certain product or user of a service in a certain targeted market segment. Market size is measured by total number of population in a specific market. According to Kraemer & Derick (1998), market size determines the number of potential customers such as companies, government agencies and other organization who can afford to buy product or services. It is not always the case that market population will be the target market. However, the total number of population in a given area indicates the relativity of the market potential. The main purpose of market sizing is to provide information of business feasibility particularly on key marketing decisions such as pricing and other marketing tactics on operational and technological capability as well as resources allocation. According to Mirman (2003), there are two methods of estimating the market size of a specific area, these are Top down and Bottom up approaches.

Bottom up approach estimates the sizes of the market by projecting individual cluster. An organization has to identify the market segment it intends to serve and then estimates the sizes and growth. For instance, a company looking to launch a mobile services for football match ticket booking, must first know how many football fans are there and also how many of them have access to mobile phone and are willing to pay for the service so that to sizes that market segment. This approach depends solely on primary and secondary data, the places where data are not available the process become complicated and inaccurate estimates are guaranteed.

On other side, unlike the bottom up approach, top down approach commence with overall target market. The different filters are used at different level to arrive to a successively target size. According to Arnold (2004), top down moves from country level data to product specific data. For instance, the government or institutions want to launch a mobile voting. The overall market includes all population available and then comes issue of ages (i.e. above 18 years) and thereafter a membership card and so on. This eventually ends up to the intended target market sizes. These two market sizing approaches depends mostly on reliable available data either secondary or primary data. Figure 15 below present Top down approach for defining market potential.

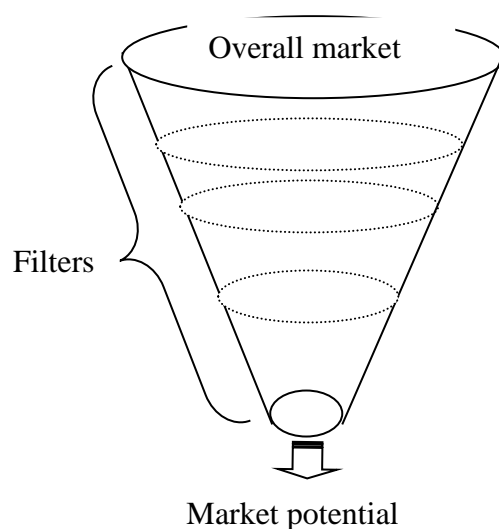


Figure 15. Top down approach for defining market potential (Arnold, 2004).

Top down approach is a perfect method for estimating market potential due to the fact that most indicator used are relevant to market size. However, macroeconomic and population number used at country level gives a hint for market potential but does not guarantee sales potential because no any indication of prospects likelihood of being turned into actual sales. (Arnold, 2004). Second, accessibility, according to Kotler & Keller (2009), market segment is considered potential if it reachable, accessible and quantifiable. Therefore, no matter how attractive the market is, it should be reachable and accessible to make economic sense. Always population are scattered in different regions for instance, a certain percentage lives in rural areas and the rest in urban areas. The extent to which a market segment is reachable affects the potential of the market. Third, market consumption is linked directly to consumer income. According to Smit (2010), population with high income has high demand of product or services. Market consumption capacity is measured by the size of the middle class. The proportional shows middle class population of country's income spread by consumption distribution base of 20 to 80 percent of the population. The middle class population has significant degree of spending capacity and most of the consumer based company draw much

attention of this group (Cavusgil, 1997). Fourth, market intensity presents richness of the market and is measured by purchasing power parity estimated from GNP per capita and personal consumption expenditure per capita in US dollar. Purchasing power parity is measure by several variables such as wages, salaries, employee benefits, corporate earnings (Cavusgil, 1997).

Fifth, market growth rate can be described as an increase in product sales or population in a given market annually. Market growth rate is measure by the average growth rate of the industry in general. Market growth can evaluate the performance of the product of services in a specific market. Sixth, economic freedom incorporates trade and taxation policy, government consumption of economic output, monetary and banking policy, capital flows and foreign investment. Seventh, foreign product and business receptivity is not considered as one the criteria for market selection. However, market receptivity plays important role in assessing and sensitizing standards as well as simplifying accessible commercial risk indicators (Cavusgil, 1997). Market receptivity dimension is measured by importation from foreign markets. It is represented by per capital imports and average annual growth of imports from US. (Cavusgil, 1997)

Finally, access to distribution and communication to the market shows how attractive the market is. Kotler & Keller (2009) postulate that easy reachable and accessible segments attracts marketer simply because customers can to reached at reasonable resources and efforts. Therefore, commercial infrastructure cannot be a snubbed criterion in the market potential estimation process. The discussed factors in this Section give comprehensive information on the attractiveness and potentiality of the particular market. According to (Wolfe, 2006), Market potential is an estimate of the amount of money expected by the suppliers to make from the product or service offerings. The estimate accuracy will only depend on the information used in the assumptions. Mundy & Bullen (2006) proposed a formula for estimating potential of the market:

Estimated market potential:

$$MP = NPC \times MS \times ASP \times AAC$$

Where

MP = Market Potential

MS = Market share (percent of consumers buying product or services)

NPC = Total number of potential consumers

ASP = Average selling price

AAC = Average Annual consumption

The formula above estimates market potential for a specific company based on its business model. However, in today's business where no firm operates in isolation therefore, every company is interested to know how much potential can be grabbed from the whole market based on the operational position in the value chain.

4.2. Business Models

Every Mobile service has unique business model which covers all the process of revenue generation. According to Johansson et al. (2012), as the internet and related technologies have changed the way business is done, interest has grown in business model among the business practitioners such as managers, researchers and others Business model has become a buzzword that gets thrown around. However, the word "Business model" is still surrounded by a lot of confusion especially on what it is and how can be used. This lack of consensus has been attributed by the range of disciplines linked to the term (Jansen et al., 2007). A business model concept engulfs the number of ideas depending on the linked fields. Existence of varieties models of business models brings in confusions and keeps models mushrooming. Several scholars have defined business model differently but most of them describe it as revenue generating tool, organization structure or a way of creating customer value via the internet. Johansson et al. (2012) identified four key components in the business models as (1) strategic choices, (2) creating value, (3) capturing value and (4) value network. Thereafter, Johansson et al. (2012) defined a business Model as "*a representation of a venture's underlying core Logic and strategic choices for creating and capturing value within a value network*".

A complete business model definition should address the components and not a specific model or typologies. On the other side, Morris et al in (Johansson et al., 2012) state a business model description that considers factors related to the offerings, market conditions, internal strategy, competitive strategy, economic factors, and investor factors. In addition, Morris et al. (2005) postulate that the proposed business model description can be generalized and applied to different industry. However, it is very important to acknowledge the sector specific and venture specific and features of the business model. According to (Bouwman et al., 2008), business model can be globally classified as

- Revenue model: This describes a manner in which a firm/network can generate revenue.
- Integrated model: Refers to strategy and configuration of a firm/network to explore and exploit business opportunities.

This research study concentrates on the revenue business model. According to Amit & Christoph (2001), revenue business model has become popular for internet based

businesses after it seemed to be saving as good description of cash flow, revenue and cost inherited in the businesses. A number of authors have discussed different methods that are used to generate revenue over the internet businesses. Few methods discussed include sales of subscriptions, advertising revenue and transaction revenue (Amit & Christoph, 2001). A firm can choose a business model based on one of the methods mentioned above. However, the interpretation is bounded since the methods describe only ways of making money (Jansen et al., 2007).

According to Peter Drucker in Casadesus-Masanell & Ricart (2011), states that Business model must answer the following questions: who is your customer, what does the customer value, and how you do deliver value at an appropriate cost. Rappa (2011) postulates that a business model is a method of doing business by which a organization can sustain itself. In addition, Rappa (2011) explained that business model saves as a guide that clearly describes how a firm generates revenue in its value chain position. Rappa (2011) went far and provided taxonomy of business models suitable for mobile and e-business related businesses. Table 6 below show taxonomy of web mobile business models by (c, 2011).

Table 6. Presents the taxonomy of web mobile business models (Rappa, 2011).

Mobile Business Model	Explanation
Brokerage	In this model Brokers acts as market-makers. Brokers provides an opportunity for buyers and sellers get together and facilitate transactions. Usually a broker charges a fee or commission for each transaction it facilitates.
Infomediary	Information about consumers and consumption rate trends are valuable piece of data for analysing and identifying target market.
Advertising	A service provides content mixed with advertising messages in the form of banner ads. The banner ads may be the source of revenue for the advertiser. The advertiser may be a content creator or a supplier of content created to other partners. The advertising model works best for volume of viewer.
Merchant	In this model, Wholesalers and retailers are important players. Sales may be made based on list prices or through auction. Revenue generation is based on volume and margin of discounts down the stream.
Affiliate	In affiliate model, purchase provides opportunities wherever people may be surfing. It includes the following popular model banner exchange, pay-per-click, and revenue sharing programs. It is a pay-for-performance model.
Subscription	In thid model customer are charged a periodic such as daily, monthly or annual fee to subscribe to a service. This model usually includes freemium or premium contents. content. Subscription fees are incurred irrespective of actual usage rates and it is accompanied by advertising model and combined.

Selection of right business model lies on usage of mobile applications. According to Parnot (2001), there are different mobile applications usages which also require different business model. The following are list of type of mobile applications with relevance in the sight of business model:

- Continuous usage: Mobile applications which provides important information in periodic on non-periodic time intervals. For example. Email application, News application, game application
- One time usage: Mobile applications that are used within short time intervals. For example game applications, entertainment applications
- Sporadic usage: Mobile applications used only when need, for instance reminder

Thus, it is very important to understand the derived demands and position of the firm in the value chain and design a business model that will clearly show the revenue flow and income generated. A company/firm must have a right business model in order to create revenue particularly from a new technologies or products. Chesbrough (2007) postulate that business model covers the following functions: (1) communicating value proposition, (2) identifying target market segment, (3) clearly defining the value chain, (4) specifying the revenue generation approaches and estimate both cost and profit potential, (5) describing how the venture company fit in the both downstream and upstream value chain and, (6) formulate a competitive strategy that will ensure competitive advantage.

4.3. Mobile Services Application Segment

Global mobile services market is increasingly defined by huge number of mobile subscriptions. Mobile technology is being regard as one of the technology with highest market penetration ever surpassing computer technology, Internet and others. Transformation from voice services business to value added mobile services catalyzes the mobile market growth. Nowadays, mobile technology is no longer improving the personal living standards only but also improving business processes performance and productivity. According to OECD/ITU (2011), mobile technology is significantly expanding government's capacity to deliver benefits and outcomes for government, businesses and citizens. Thus, impacting national overall economic growth positively.

Mobile Service cuts across different fields which define its applications widely. Therefore, segmenting mobile service market requires the knowledge of the potential mobile application fields. Varshney & Vetter (2001); Nickerson (2007) lists different mobile applications though the list is not exhaustive. The following is the list of mobile applications:

- Mobile messaging
- Mobile navigation
- Mobile TV
- Purchasing location-based contents
- Mobile inventory management for a company
- Product location and tracking for individuals
- Mobile banking & financial services
- Mobile games – individual
- Mobile games – group
- Mobile advertisement user – specific
- Mobile advertising – location-specific
- Mobile personal services (mobile dating)
- Mobile distance education – offline
- Mobile distance education – online
- Mobile product recommendation
- Mobile telemedicine and patient monitoring
- Mobile ticketing
- Mobile healthcare
- Mobile emergency and safety management
- Mobile habitat and environmental monitoring
- Mobile social networking

Regardless of the product or industry, the process of market segmentation follows almost the same route. Jobber (2003); Kotler (2009) proposed the steps to start with when segmenting the market particularly in B2B markets. As it was discussed in Chapter 2, it is clear that market segmentation starts with identifying macro segmentation variables and then dig deeper and deeper to micro-segmentation variables which in the end provides most specialized and unique market segments that might be used by firm as a competitive advantage. Figure 16 below illustrates mobile services application segmentation.

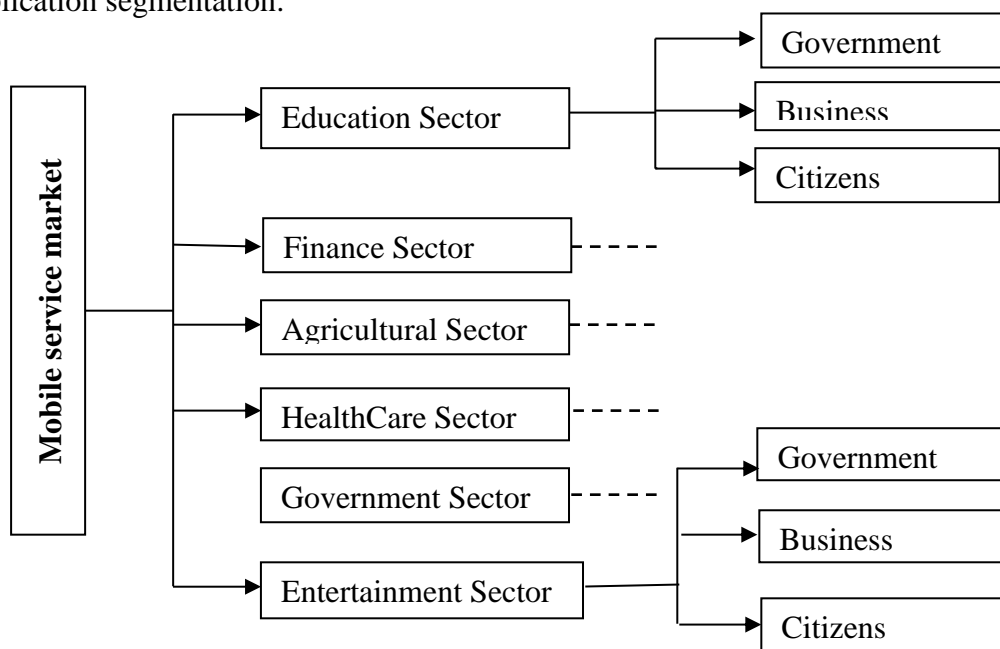


Figure 16. Mobile services application segmentation.

According to Rannu & Semevsky (2005), mobile services market can be categorized based on the service providers against mobile service receivers. There are three types of services providers: Government, business and citizens similar to service receivers. That means mobile services can be provided by Government to Government or Government to Business or Government to Citizens as well consumer of the services can follow the same trends. Figure 17 below shows a 3x3 matrix for mobile services providers and mobile services receivers' categories.

<i>Service Provider / Customers</i>	GOVERNMENT(G)	BUSINESS(B)	CITIZENS(C)
GOVERNMENT(G)	G2G	G2B	G2C
BUSINESS(B)	B2G	B2B	B2C
CITIZENS(C)	C2G	C2B	C2C

Figure 17. Mobile services providers and receivers category groups (modified from Rannu & Semevsky, 2005; Oui-Suk, 2010)

Advancement of mobile technologies is pushing the government to take a serious attention on delivering most of the services in mobile environment. According to Carroll (2005), the shift from e-government to m-government has been facilitated by growing capabilities of mobile technologies and improved infrastructures, devices and systems and high rate of adoption in both developed and developing countries. Thus, ensure customer satisfaction both internally and externally. The combination of communication technologies and Internet technologies provides ability to access services at any time and from anywhere (Östberg, 2003).

Mobile government application differs from country to country depending on the setup of the government communication strategies and interactions with stakeholders. As shown in the Figure 17, Government to Government (G2G) means utilization of mobile and wireless technologies within the government agencies to make internal functions more effective and efficiency. For example, an employee working in the field can send information or updates about the sites using PDA or mobile phone to the Head Quarters (HQ). Government to Business (G2B) application targets more on how the government enhances business processes to other non-governmental organizations. G2B provides information concerning policies, regulation, tax payments, licensing and other enterprises development matters (OECD/ITU, 2011). Therefore, G2B facilitates businesses and provides attracting business environments. G2B works similar to B2B as the most purpose of B2B mobile application is to improve business process in the firm and working together partners.

Government to Citizen (G2C) and Business to Citizens (B2C), these are the most targeted areas in m-government applications. Every government and firm would like to

serve better prospective customers. Therefore, bringing in well-designed mobile services that ensure easy communication between citizens and government and provision of services in a better ways which ensure profitability and revenue for the business and government respectively (Chang et al., 2002). Example of G2C and B2C are Mobile parking services which is always provided by government under the City council, Mobile ticketing, and mobile banking services are provided for the business purposes. For instance, in Denmark there is a Mobile Alert System (MAS) which provides instructions and guidance to citizens through their mobile devices in case of natural disasters, accidents and other emergencies (OECD/ITU, 2011). It is rarely to find Citizen to Government and Citizens to Business. However, their existence would imply that citizens have designed mobile services to communicate or interact with government or firms.

Moreover, Citizens to Citizens (C2C) mobile services are designed and organized by the citizens themselves for the purpose of enhancing community social cohesion. It might be services launched via social network media such Facebook, Twitter, Skype but accessed through mobile devices to intended people. The highlighted part in the Figure 17 illustrates the most active mobile service segments.

Apart from mobile service applications segments defined by Rannu & Semevsky (2005), Nickerson et al. (2007) added more on the classification by introducing another dimensions on characteristics between user and mobile applications interactions. Mobile services are segmented based on: (1) Temporal dimension, (2) Communication dimension, and (3) Transactions dimension. First, temporal dimension, user receives immediate response from the mobile applications meaning that the interactions between user and mobile applications are in real time mode. In other mobile application user interacts with application in non-real time mode. This categorizes temporal dimension into synchronous and asynchronous modes respectively. (Nickerson et al., 2007)

Second, Communication dimension, describe the flow of information from mobile applications. The flow of information from the mobile application might be Uni-directional or bi-directional. This communication is characterized by informational in which information flows only from the mobile application to the user (i.e. Uni-directional), reporting information flows only from the user to the mobile application (i.e. Uni-directional) and Interactional where information flows in both directions between the user and the mobile application (i.e. bi-directional). Third, transaction dimension, this dimension falls mostly under financial mobile applications where users interact with mobile application when making transactions either buying or paying for product or service bills (Nickerson et al., 2007).

Figure 18 below combines the two mobile services application segments approaches introduced by Rannu & Semevsky (2005); Nickerson et al. (2007) based on the discussion above.

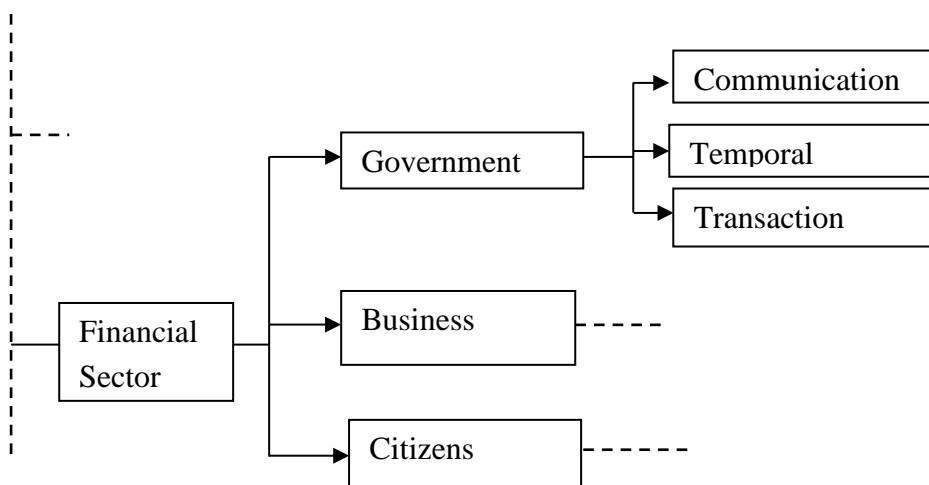


Figure 18. Combined mobile services segmentation approach from Rannu & Semevsky 2005; Nickerson et al., 2007.

The essence of market segmentation process is to have more unique, measurable, accessible market segments that can be used by firm to gain competitive edge in the market. Therefore, generalized market segments obtained from macro variables cannot suit for that purpose. There is a need to go deeper and deeper with micro variables so that to arrive at most distinguishable market segments. To align within that market segmentation purpose this study will provide a case example of market segmentation in mobile money. Figure 19 below illustrates mobile money segments under the umbrella of financial sector.

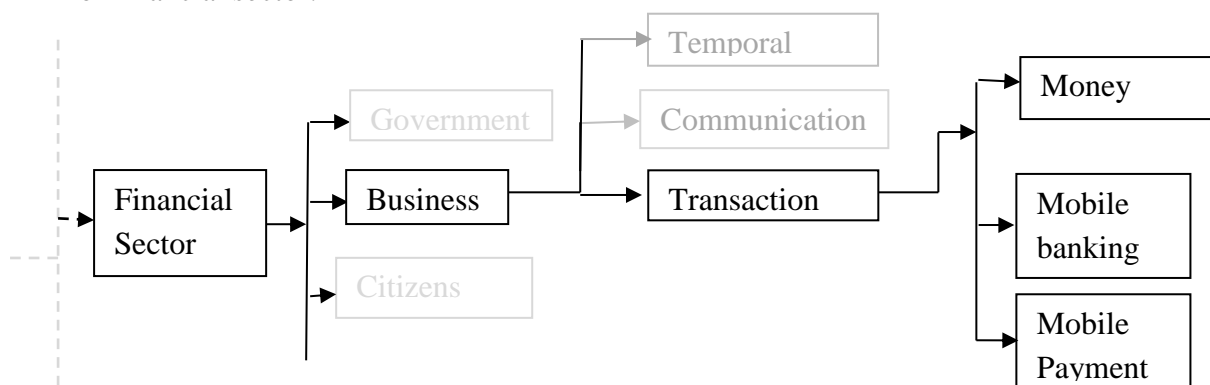


Figure 19. Mobile money segmentation.

Recent booming in mobile money business promises profit potential, both in short and over the long term, for mobile operators and other stakeholders globally. The emerging mobile money is increasing pressure on banking sectors to change the way they provide service to customers so that to ensure customer retention. Mobile money market is very fragmented in terms of service type, technologies, customers and location. Therefore,

firms are evaluating the market critically so that to determine suitable technological approach to support implementation of right business strategies (Shroff, 2011). Mobile money services market can be segmented as shown in the Figure 19 above. Although segments are overlapping due to difficulty on finding a clear difference between mobile banking services for people with bank accounts and for unbanked (Wilcox, 2011). Mobile money services are inevitable in developing countries due to high number of “unbanked” population. Therefore, mobile money services are regarded as a savior. However, customers always have different preferences when it comes to products or services, as the result market segmentation helps service providers to find out which market segment to target with which kind of services. Furthermore, evaluation of market attractiveness among the selected market segments is a crucial step in order to serve them profitably.

4.4. Framework for Estimating Potential in m- Service

Estimating and evaluating business potential has been a challenging task to managers, and entrepreneurs. Every manager would like to make decisions based to concrete evidence especially in the area of investment. However, mobile technology applications investment has remained largely uncovered. Ability to assign value and associate mobile technology and business output is far more difficult to arrive on (Vaida, 2004). Wireless mobile technologies are following the revolutionary history of electronic business in the market whereby the market share and revenue generated came from B2B market segment. Recent research and discussions in mobile technologies initiates future studies in mobile potential business (Newell et al., 2001; Keen & Mackintosh., 2001; Kalakota & Robinson, 2001; Settles, 2002). Coursaris et al. (2002) proposed business models that help a firm to generate revenue based on a specific mobile service. Table 7 below present mobile services business model.

Table 7. Mobile services business models (adopted from Coursaris et al., 2002).

Model	Explanation
Access	Customers pay the bill from mobile operators in order to access the wireless network. Four different pricing schemes are listed, namely flat rate, time based, volume based and an innovative free access model.
Subscription	Customers purchase mobile value added services by subscription
Pay-per-use	In this model customers pay for parts of services that they are interested in to avoid a long-term commitment.
Advertising	Content providers or value-added service providers sell advertising spaces for funding the content or service development.
Transaction	Transactions take place while they are flowing on the content supply chain, such as the purchase of content from raw content providers by content aggregators.

Always it is not easy to design a standardized business model that will suffice all the players in the value chain. Therefore, the models presented in the Table 7 above take single firm perspective view. Componovo & Pigneur (2003) added other sources of revenue such licensing, syndication agreement and airtime sharing agreement for other players in the value chain (i.e. Network equipment vendor, content providers). In a value chain that ranges from content owner to end customer of mobile services, each players try to introduce a business model that will ensure profit potential from the generated revenue. Table 8 below presents different actors in the mobile service value chain and the source of revenue.

Table 8. Presenting the source of revenue among the mobile services partners (Componovo & Pigneur ,2003).

Mobile Services Value Chain Actors	Source of Revenue
Content providers	Subscriptions fees, usage fees, syndication agreements and airtime revenue sharing.
Application providers/developer	Earn revenue stream form billing services to third part .
Mobile Network operators	Network operators earn revenues from subscriber charging a combination of subscription, airtime fees and volume-based fees. They also earns revenues from network services provided to other parties, transaction fees (for their billing services) and may earn revenues from portal activities.
Mobile service providers	Subscription fees, airtime charges
Payment Agent	Subscription and transaction fees
Content owners	Receive revenue according to what content provider have received
Network equipment manufacturers	Earn revenue from sale or leasing of equipment and provisioning of services.

In B2B markets estimation of potential revenue is based on derived demands (Lyly-Yrjänäinen, 2011). As shown in Table 8 above, the revenue flow in every member in the value chain depends on the number of subscriptions and usage of mobile services. Therefore, it is evidently shown that derived demand in mobile services value chain emanates from the number of customers subscribed for the service or the number of users. In other words, revenue potential in business to business market is derived from consumer demands. The company in the value chain has to keep on tracking on what customer's of the customer's in doing in order to estimate or forecast the potential sales or revenue. The derived demand flows in the same direction as the revenue flow. The development of the conceptual framework for estimating potential business focuses on the following key factors:

- Position in the value chain
- Potential market segment
- Sustainable revenue generating model
- Assessment of the business potential dimension

Figure 20 below illustrates the value chain for mobile services and the flow of derived demands and revenue.

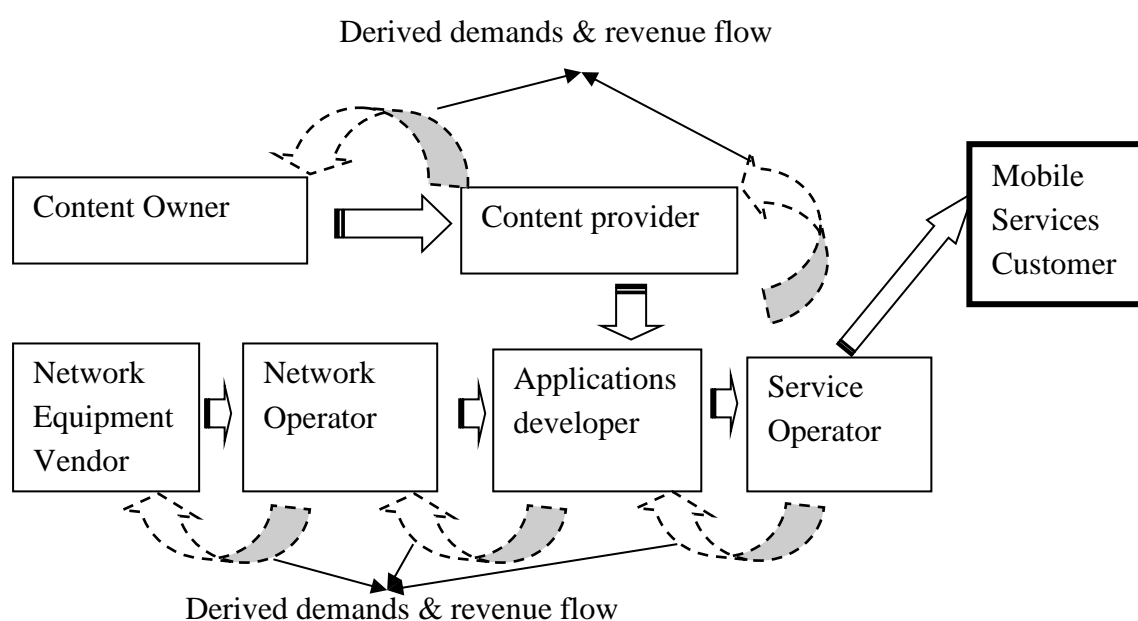


Figure 20. Derived demands and revenue flow in mobile services value chain.

More investors are interested in exploring, evaluating and exploiting business opportunities in a profitable way so that to account for the investment. After a thoroughly review of different literature on these factors. This research study develop a conceptual framework that provides guidance to managers/entrepreneur to arrive at a better feasibility study of the mobile service business idea. Identifying potential position in a value chain promise a sustainable business. The framework stress on need to understand market segmentation, business models particularly the revenue generating model and dimension factors for assessment of attractiveness of the market potential.

According to Osterwalder et al. (2005), the first step to evaluate the potential of the business is to identify customers and customer segments. It is very important to determine the customer common needs and examine how the customer segment is behaving over time. Thereafter, a smart manager will be able to identify which customer segment can be served and which one cannot be served. Hence the company get to

understand whom to create value for. The second step is to identify the main vein of the company. No company can survive if it cannot identify an appropriate revenue model. Managers should clarify how much the customers are willing to pay for their offerings. Figure 21 represent a conceptual framework for estimating potential mobile service business.

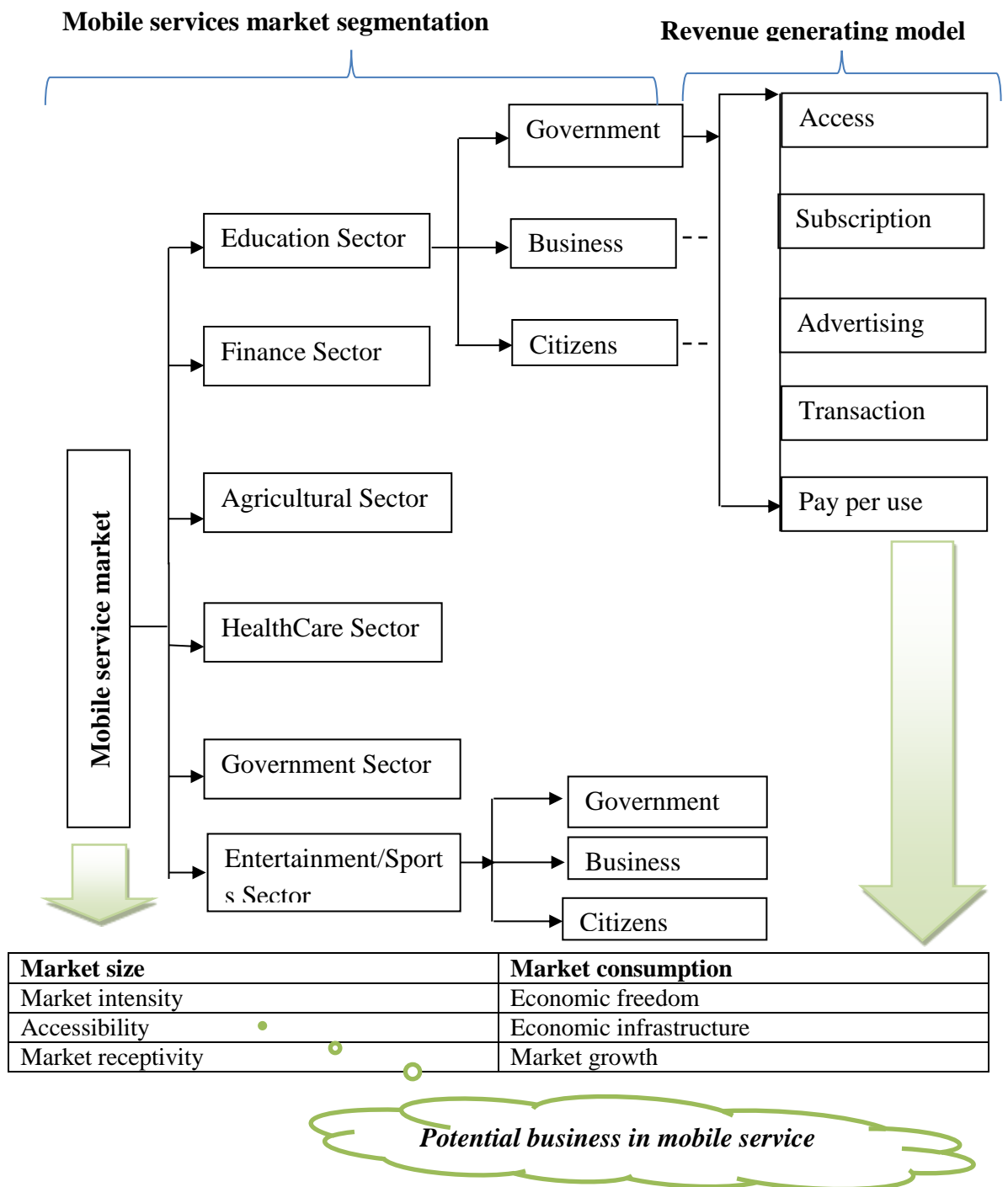


Figure 21. Presents a Conceptual framework for estimating potential business in mobile service.

The revenue model might be transactional in which the payment are done once for instance assets sales or might be recurring fee for the service is an ongoing payment a good example is subscription fee. However, there is range of revenue generating models which might be combined in order to leverage of each model generating capability (Osterwalder et al., 2005). Third step, for marketers looking to expand abroad or locally, different studies provides market screening models for evaluating and selecting potential market (Papadopoulos et al., 1988; Cavusgil et al., 2004). Always market dynamism and future potential resulting from rapid environmental change pose challenges to the market potential analyzing tools. Cavusgil (1997) proposed an indexing approach for estimating market potential in emerging market.

As discussed in the previous section, this approach includes the following dimensions: market consumption rate, accessibility, market growth, market intensity, economic freedom and commercial infrastructure. In a dynamic mobile services market which require aggressive thinking on how to do business sustainably! The conceptual framework developed in this research study provides a good guidance on the key areas that need attention by all value chain players in different positions. The rate of technology obsolete is increasing dramatically which threaten small players that cannot move parallel with changing technologies by investing in R&D. Therefore, mobile service potential estimation framework developed in this research study discusses the market conditions by assessing the business potential dimensions and constantly updating the target market segments. A developed framework provides a range of revenue generating models that can be used concurrently in the market depending on the nature of the mobile service and the target market segment. However, Osterwalder et al. (2005) postulates that estimated potential business can be affected by the following external forces. Figure 22 below illustrates how an external force affects estimated business potential.

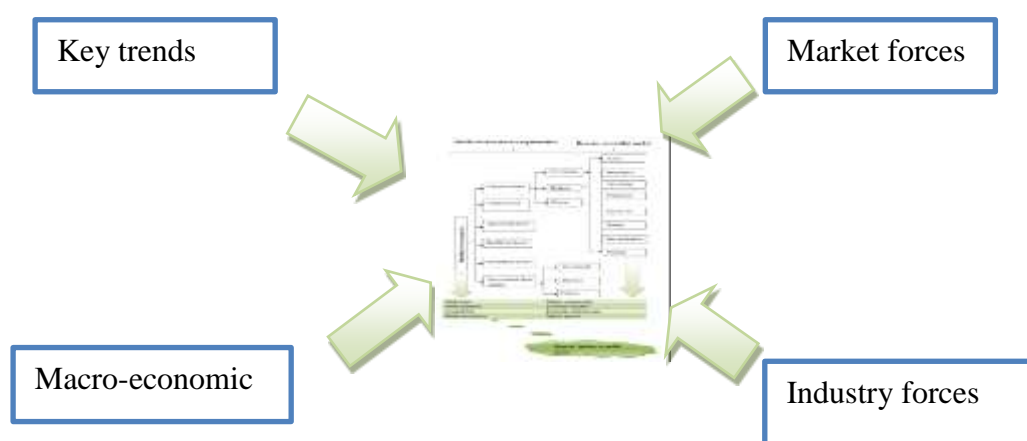


Figure 22. Presents four forces that affects estimated potential business in mobile services (adopted from Osterwalder et al., 2005).

This Chapter has discussed how to estimate potential business in mobile segments. Also this Chapter has introduced and discussed the concept of business model main emphasis on mobile services revenue generating models. In addition, this Chapter has covered the mobile services applications segments. Finally, in combination of literature discussed in Chapter 2 (i.e. Marketing process) and Chapter 3 (i.e. Mobile services), a conceptual framework for estimating potential business in mobile services is developed. The framework developed will be used by managers/ entrepreneurs as a guidance tool in the process of exploring and evaluating business opportunities particularly in mobile services market. The next Chapter introduces Tanzania mobile services market.

5. TANZANIA MOBILE SERVICES MARKET

5.1. Country Profile

United Republic of Tanzania is geographically located in Eastern Africa between longitude 29° and 41° East, Latitude 1° and 12° South. (The Government of Tanzania, 2010a). Tanzania is bordered by eight countries namely Kenya, Uganda in the northern part, Rwanda, Burundi and Democratic Republic of Congo in western corridor and Malawi, Mozambique and Zambia in the southern part while Indian Ocean covers the eastern part of the country (CIA, 2012). Tanzania is the largest country in East Africa which comprises Tanzania mainland, Pemba and Zanzibar. Tanganyika gained independence in 1961 and Zanzibar in 1963. The United Republic of Tanzania was formed in 1964 in the union of Tanganyika and Zanzibar (The Government of Tanzania 2010a). Thus, summing up to a total land of 947,300 square kilometers. Seven percent of the total land is covered by water such as Island of Mafia, Pemba, Zanzibar, Lake Victoria, Lake Tanganyika, lake Nyasa and others. Tanzania is the agricultural country with 40 million hectares of arable land and the country is gifted with a broad range of valuable natural resources which includes gold, gemstones, diamonds, coal, phosphate, natural gas, nickel. (CIA, 2012)

Tanzania harbours Lake Tanganyika the longest and second deepest in the world, Mt. Kilimanjaro the highest snow capped mountain in Africa and Lake Victoria the second largest lake in the world. Tanzania provides ports gateway to neighboring landlocked countries through Dar es Salaam, Tanga and Mtwara ports (Ngasongwa, 2005). Figure 26 below present the map of United Republic of Tanzania



Figure 25. Country Map of Tanzania (adapted from CIA report, 2012).

Tanzania is gifted with natural attractive game reserves and national parks such as Selous Game Reserve, Ngorongoro Crater, Gombe Stream, Tarangire, Ruaha, Saadani, Udzungwa Mountains, and Mkomazi Game Reserve. (The Government of Tanzania, 2010). Summary of Tanzanian demographics (See Appendix 3).

Economy

Tanzania is among the poorest countries in the world. Tanzania economy depends heavily on agriculture sector which contribute nearly 50 percent of the overall GDP and agriculture only employs 80 percent of the workforce (TanzaniaCommonwealth, 2012). Tanzania's economy has shown dramatic increase with a growth rate of between 5% and 8% every year since 2000. According to the International Monetary Fund (IMF), Tanzania has only a moderate decline of GDP growth to 5% in 2009 as a result of the global economic crisis and from 2010 GDP has shown increase at growth rate of 7% and more was achieved again from 2011 onwards, this has been achieved due to a reflection of its relatively stable political situation. Stanley (2009) state that two - third of the Tanzanian GDP depend on agricultural sector. Tanzania industry is one of the fastest growing in Africa fast, rich in mineral resources and attracting foreign direct investment, will benefit from multilateral debt relief initiative. However, aggressive measures taken to liberalize the Tanzanian economy has motivated and encouraged both domestic and foreign investment. The World Bank, the IMF, and bilateral donors supported the rehabilitation of Tanzania's economic infrastructure such as railway, port

and communication infrastructure that are important trade links for both domestic and international business. (CIA, 2012)

Recent reformation of banking sector has increase private-sector growth, investment, and the government has increased spending on agriculture to 7 percent of its budget. Eventually, GDP growth in between 2009 and 2011 was a remarkable, rising to 6 percent per year due to high gold prices and increased production (CIA, 2012). Table 13 below summarizes the main Tanzanian economic indicators.

Table 9. Presenting key economic indicator of Tanzanian economy (CIA, 2011).

Indicator	Data
GDP (purchasing power parity)	\$62.22 billion (2010 est.) Country comparison to the world: 84 \$58.48 billion (2009 est.) \$55.17 billion (2008 est.)
GDP (official exchange rate)	\$22.43 billion (2010 est.)
GDP - real growth rate	7% (IMF, 2012) 6.4% (2010 est.) Country comparison to the world: 36 6% (2009 est.) 7.4% (2008 est.)
GDP - per capita (PPP)	\$1,500 (2010 est.) Country comparison to the world: 202 \$1,400 (2009 est.) \$1,400 (2008 est.)
GDP - composition by sector	Agriculture: 41.6% Industry: 18.1% Services: 38.4% (2010 est.)
Inflation rate (consumer prices)	19.8% (IMF, 2012) 7.2% (2010 est.) Country comparison to the world: 182 12.1 % (2009 est.)
Industries	Agriculture, Financial and business services, Trade and tourism, manufacturing, Telecommunication Mining, Oil and gas exploration.
Exports	\$7 billion (2011 est.) \$3.809 billion (2010 est.) Country comparison to the world: 116 \$3.365 billion (2009 est.)
Exports - commodities	Gold, coffee, cashew nuts, manufactures, cotton
Exports - partners	India 8.51%, China 7.55%, Japan 7.12%, Netherlands 6.21%, UAE 5.71%, Germany 5.17% (2009)
Imports	\$12 billion (2011 est.) \$6.334 billion (2010 est.) Country comparison to the world: 105 \$5.834 billion (2009 est.)
Imports - commodities	Consumer goods, machinery and transportation equipment, industrial raw materials, crude oil
Imports - partners	India 13.97%, China 13.71%, South Africa 7.8%, Kenya 6.89%, UAE 4.65%, Japan 4.34% (2009)
Exchange rates	Tanzanian shillings (TZS) per US dollar - 1,423.3 (2010), 1,320.3 (2009),

Nowadays, the industrial sector in Tanzania is one of the smallest sector in Africa and accounts for less than 10 percent of the Tanzania GDP. Nevertheless, the sector continues to play big role in contribution to Tanzania economy as it is still one of the sustainable sources of government revenue in terms of import sales. (TanzaniaInvest, 2012)

5.2. Tanzania Telecom Market

Until 1993, the Tanzania Posts and Telecommunications Corporation held a monopoly in the provision of communications services and took all responsibilities for regulating this industry. According to Dion Global Solutions (2010), since the liberalization in 2001, Tanzania has experienced an exponential growth in telecommunication industry. The regulatory system also remains committed to expanding network coverage both in rural and urban areas. Recent shift from fixed line technology to mobile technology has accelerated and changed both business model and income generation. Tanzania's mobile sector has seen huge growth and expansion in the past decade with the number of mobile subscribers increasing from around 8 million by 2007 end to over 23 million by 2011 end as shown in the Figure 23 below.

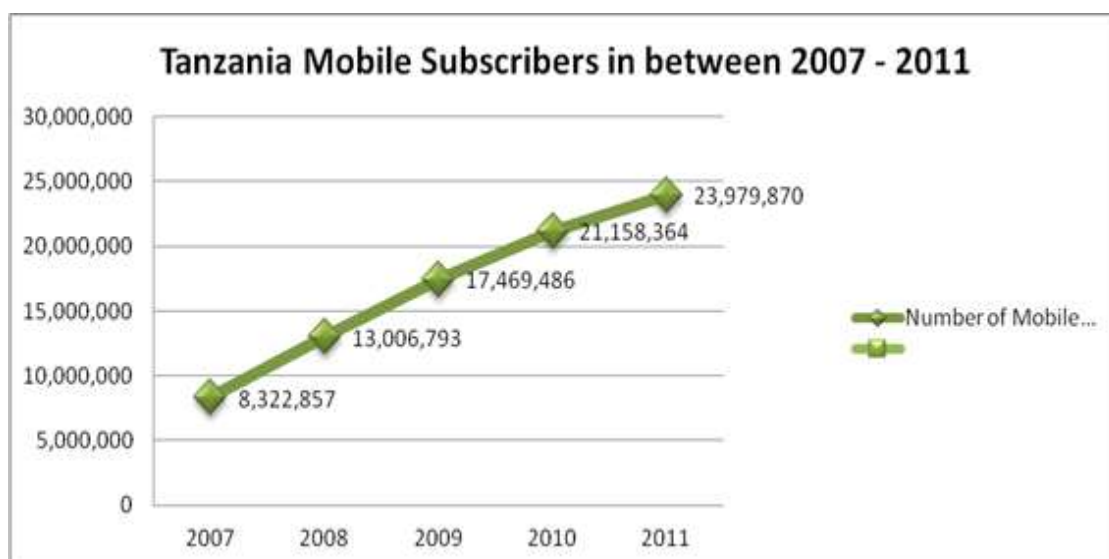


Figure 23. Illustrating the growing number of mobile subscriptions 2007- 2011 (adopted from TCRA, Sept-2011).

Tanzania's Telecom sector has recently been named the fastest growing sector of economy. Telecom industry recorded growth increment from 20.5 in 2008 percent to 21.9 percent in 2009 and contributes 2.1 percent to the overall GDP in 2009 (Tanzania Budget, 2011). Liberation of telecom industry paved a way to engagement of private investment in the industry. The move was very accelerated by the establishment of Telecommunication Regulatory Authority (TCRA). TCRA is an autonomous

government agency formed under the Act no. 12 of 2003 as an independent agency regulating and licensing of postal, broadcast and communication industry. Therefore, TCRA promotes competition and economic efficiency, consumer interest's protection, grant licenses and enforces license conditions, regulates tariffs, and monitor performance among the registered members across the telecommunication market (Materu-Behitsa & Diyamett, 2010).

The government has aggressively embraced the principals of competition which has led to active participation of private sectors including foreign investors as one way of advancing economic and social development (Tanzania Daily News, 2011). With all prevailing growth, Telecommunication sector is being accelerated by free and fair play business environmental grounds set by the government (Johnson, 2009). The Tanzanian government has sought to attract foreign investment with the Investment Act of 1997 forming part of this process. Despite challenges facing telecom industry such as high import tariffs on telecom equipment and taxes and underdeveloped infrastructure including railway, electricity, still there is increased investment particularly in introduction of new services and technologies which all together promise future of telecom market. (Johnson, 2009)

Currently, Tanzanian Telecom industry has several mobile operators namely Vodacom Tanzania Limited, Tanzania Telecommunication Company (TTCL), Tigo Tanzania, Bharti Airtel Limited, Zantel, Sasatel, Benson Informatics and Dovetel Limited. The industry is characterized by fierce competition which might eventually discourage future investment due to drastically reduction of tariffs up to less 0.5Tsh per second. The price war continues to enforce the operators to low their services charges every now and then in order to capture market share and revenue. Mobile market advertisements for different mobile operators (See Appendix 4).

It is vividly shown that all mobile operators use price competition for pursuing customer's loyalty. According to Mr. Rene the managing director of Vodacom Tanzania, price competition has forced mobile operators to reduce the price significantly. Thus, causing the drop of ARPU. Mr. Rene added that not only price competition has caused the drop of ARPU but also expanding the network coverage to population at the bottom of the pyramid has resulted to significant drop of ARPU because most of people at bottom of the pyramid spend less and less on communication. (Sebastian, 2012)

5.3. Evolution of Mobile Services

Evolution of Mobile communication technologies has revolutionized the way people/community communicates. The integration between communication and mobility had provided remarkable technology acceptance which have never happened before globally

(Kumar et al. 2010). In Tanzania the reform and restructuring of the communication sector started in 1993. The reform involved two processes: Dissolution of Post and Telecommunication Corporations (TP and TC) and establishment of Tanzania Communication Commission (TTC) as an independent regulator and Tanzania Telecommunication Company (TTCL) as a service operator (Mutagahywa & Ngalinda, 2005).

In 1994, the regulator granted a license to Mobile operator called Mobitel which was co-owned by TP and TC and Millicom International. One year later another license was granted to another mobile service provider company called TRITEL which introduced competition in the market and led to a 60 percent decrease in mobile service charges (Mutagahywa & Ngalinda, 2005). According to Materu-Behitsa & Diyamett (2010), liberation of telecom industry paved a way to engagement of private investment in the industry. The move was very accelerated by the establishment of Telecommunication Regulatory Authority (TCRA) and was formed under the Act no. 12 of 2003 as an independent agency regulating and licensing of postal, broadcast and communication industry. Therefore, TCRA promotes competition and economic efficiency, consumer interest's protection, grant licenses and enforces license conditions, regulates tariffs, and monitor performance among the registered members across the telecommunication market.

According to Kilaba (2010), among the communication equipment's entered in the country 64 percent were mobile handset which accelerated the usage of mobile phones and access to mobile services. Figure 24 below show the communication market share in 2010.

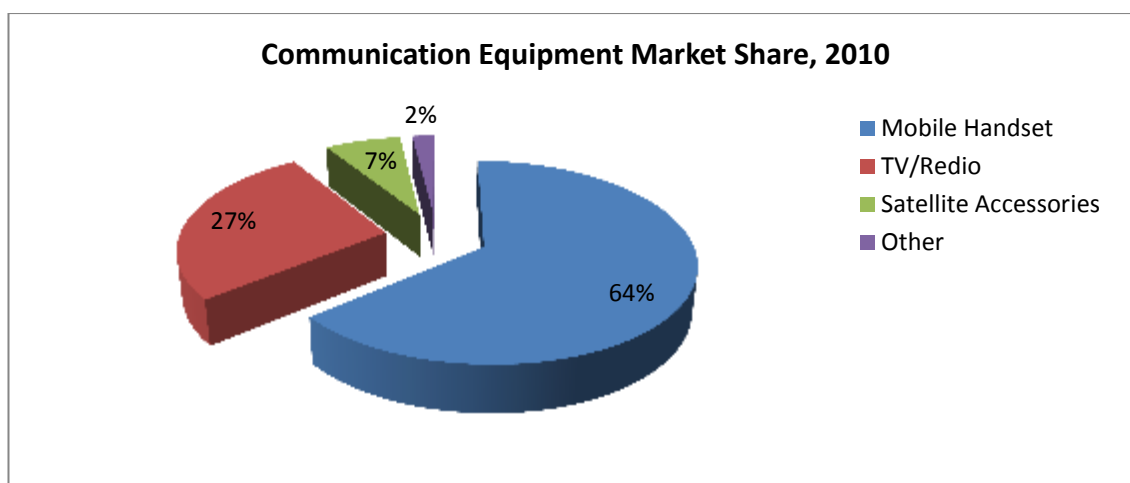


Figure 24. Showing Communication Equipment Market Share in 2010 (adopted from TCRA: Kilaba, 2010).

Advancement of mobile communication technology globally has also impacted the Tanzanian mobile industry. The mushrooming of mobile services especially through the umbrella of Value Added Services (VAS) has been possible due to the change of mobile technology. The dominance of GSM technology over the CDMA has contributed to Telecom operator to adopt a new revenue stream through VAS. Thus, VAS is a competitive weapon in Tanzanian mobile market. Initially mobile providers only provided voice based service. After voice business revenue has fallen significantly, all Mobile Service providers have diversified their service portfolio to data business. Figure 25 below illustrates how mobile services have evolved in Tanzanian mobile market

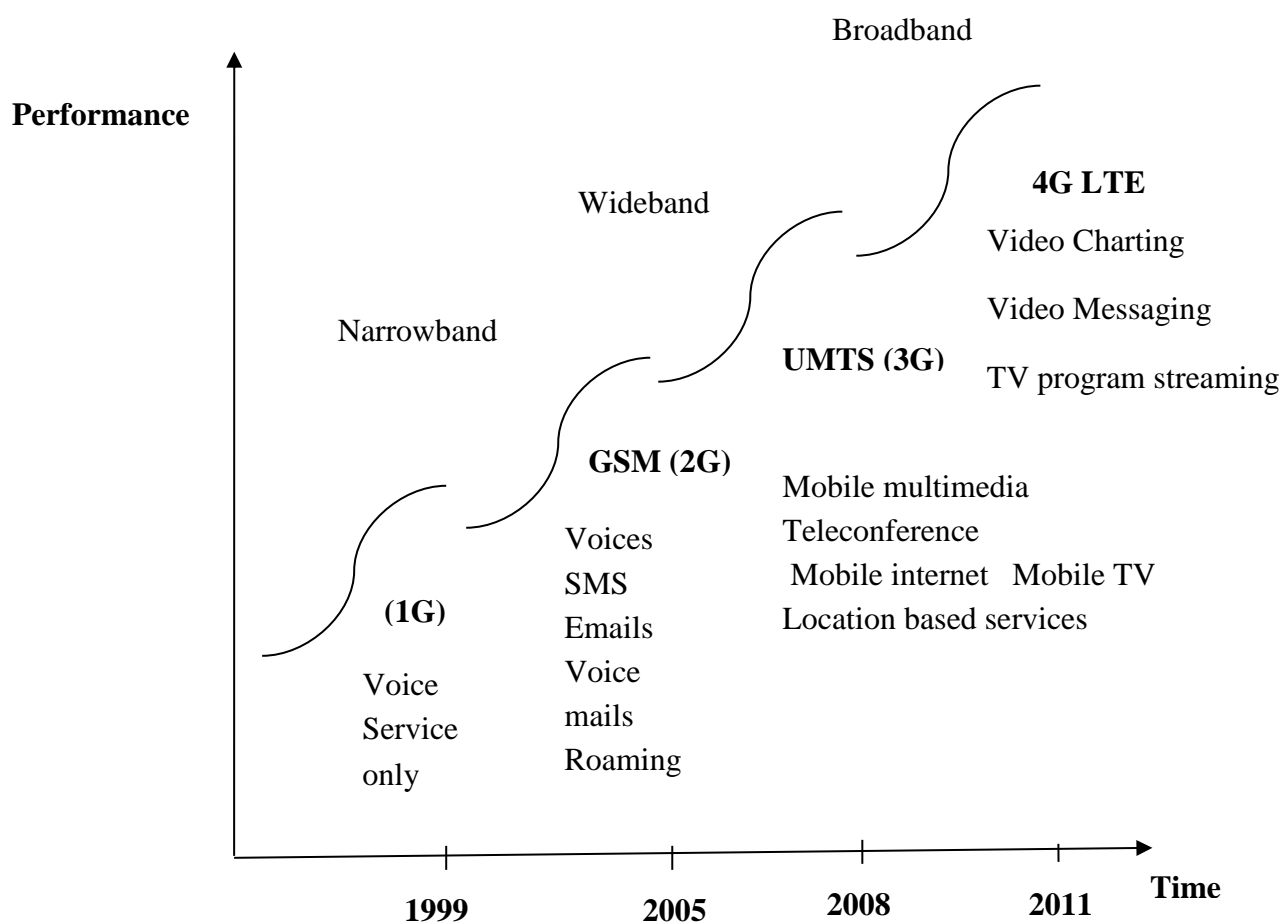


Figure 26. Mobile services evolution in Tanzania. (adopted from Shams, 2013)

The fast pace in advancement of mobile technology globally has accelerated the evolution of mobile services in the country. Each technological advance is associated with increase in capacity, bandwidths speed, integration level and convergence. Thus, today people have started using their mobile phones for more than making voice calls. On the other side, handset manufacturers have flooded the market with new mobile phones with built in advanced features/functions which attract more customers. Most of new features deployed support many Value Added Services (VAS). Mobile services

will continue to evolve based on the available enabling and supporting hardware and mobile communication technology in the market. The next section discusses the challenges in Tanzanian mobile market.

5.4. Challenges in Mobile Service Market

Tanzanian mobile market account prospect customers of more than 40 million populations. The current mobile market penetration presents only 40 percent of the population. This proves that the opportunity for growth in the market is tremendous. Therefore, mobile operators have heavily invested in the market. For instance, mobile operators are working hard in expanding coverage, introducing new technologies and new solutions to address social needs and mobile consumers' needs prevailing across voice, data, m-business and internet. (Sebastian, 2012)

The managing director of Vodacom Tanzania said that, “.....*mobile market opportunity in Tanzania is huge. It is a market that is still at an early stage in terms of mobile penetration and development. There is therefore a massive opportunity for Africa as a continent to really become a prominent industry in mobile telephony*”. (The citizen, Jan, 2012)

Despite the huge mobile market opportunity in Tanzanian mobile industry, the country does not isolate from the challenges facing other developing countries particular African nations. The following are the most crucial challenges facing Tanzanian infant mobile market. From in-depth interview the author conducted on 02.12.2012. Participant A reveals that, current challenges are on managing new markets to ensure reliable delivery and maintaining both local and international competitive pricing structures. He added that, after significant drop of voice revenue giant players in mobile business are shifting to Value Added Services (VAS) which threatens the power of small players whose core competence was on Value Added Service (VAS). Mobile operators used to partner with Mobile operators to provide gateways for different mobile services. But recently the trend has now changed, value added service market has been invaded by giant mobile operators and it creates difficult business environment for small players to compete. Although some of the small players have benefited from acquisition.

The author held an in-depth interview with Participant D on 14.12.2012. Upon probing Participant D revealed more challenges on the mobile industry. Participant D mentioned poor infrastructure as the main hindrance for efforts to expand the coverage of mobile networks to rural areas. Not only rural areas but also the urban areas lack sustainable and stable power supply which results to higher running cost in maintaining the coverage. In addition, Participant D stated that high rate of Tax also affects the business. The facts that the market for voice is saturated and the price have gone down significantly due stiff price competition arising. Therefore, high government tax cuts

profit margin significantly. Participant D calls for government to review the Tax cut so that to ensure free and fair market.

Participant B highlighted the following challenges: (1) Poor telecommunication infrastructure that has accelerates digital divide between rural and urban settings, (2) Power supply instability which creates unattractive business environment for new comers and increases operational cost for existing players in the market. Participant F highlighted technological changes as one of the factor that shake the mobile services market. The arrival of new technology is often a market threat to existing due to fear to obsolete or improvement. Figure 27 below summarizes the views from participants A, B, D and F on existing challenges in Tanzanian Mobile market.

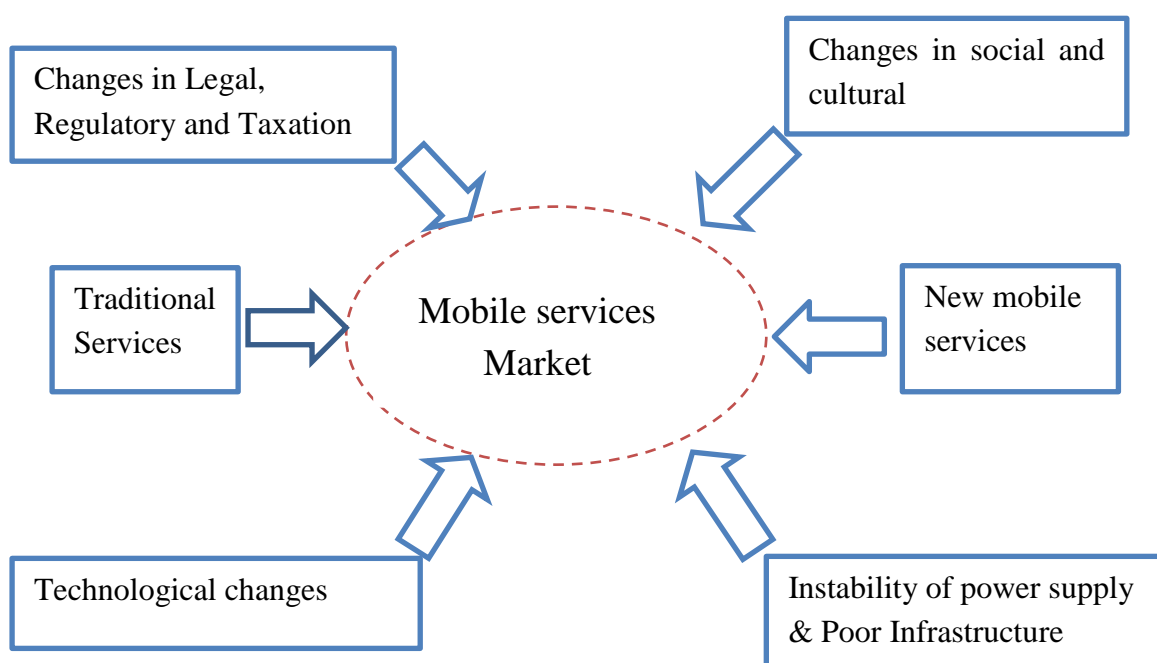


Figure 27. Summary of existing challenges in Tanzanian mobile market.

Despite the challenges discussed by the interviewees, Tanzanian mobile market still presents huge business opportunities. On critical view some of these challenges escalate to business opportunities. For instance, in the areas of power supply, companies that can provide sustainable solutions for power supply in the country are mostly likely to make money through supporting other industries. Another area of interest might be supply of network infrastructure equipment's. Companies such as Nokia Siemens, Huawei and others Tanzanian mobile market might be the green pasture. The next Chapters discuss potential business in the mobile market.

6. ESTIMATING POTENTIAL BUSINESS OF m-SERVICES IN TANZANIA

6.1. Mobile Services Market Trends

Tanzania's mobile service market is very competitive. The most remarked changes in the mobile market in 2011 and 2012 includes the introduction of voice over internet protocol (VoIP), the 3rd generation (3G) of mobile services and wireless broadband networks as well as the shift of mobile Telco's from the voice business to value added services business (InterMedia, 2013). Tanzanian mobile market is growing at rate that attracts many international investors. The stride of dynamic in the Tanzanian mobile market is significant. Revenue stream sources have shifted from voices to data services such as internet usage and value added services. The number of mobile phone subscribers is skyrocketing which calls for more data usage and encouraging transformation of going mobile almost in every sector of the economy. Figure 28 below indicates the number of mobile subscriptions compared to the number of fixed lines.

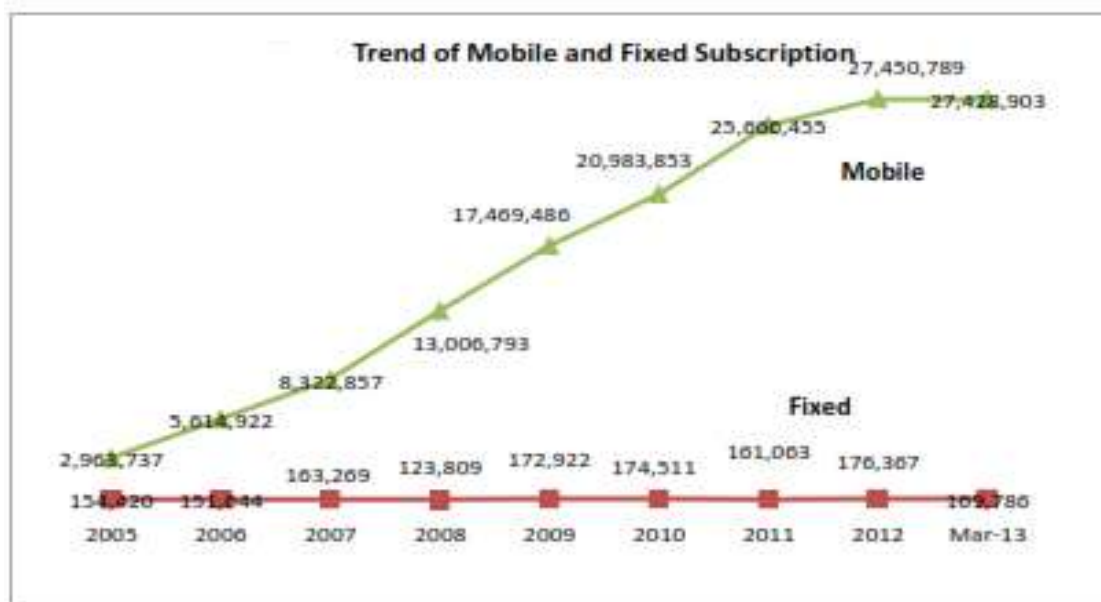


Figure 28. Trend of Mobile and fixed line subscription (adopted from TCRA 2013 report, 2013).

The drop of handset prices, low usage fees, simplicity of use and appreciably faster infrastructure implementation especially when compared to traditional wire line

telephony, speed scaling up in remote areas (Dutt, 2006). Also arrival of smartphones in minority promises for future mobile services usage.

Participant B said *"..... recently our mobile market have been invaded by fancy mobile phones and these phones are enabled to do more on data usage, more functionalities, features and internet surfing"*. Therefore, the community have to adapt quickly on use of smartphones in order to explores numerous mobile services.

Participant A and F beliefs that the future of mobile market will depend on the following factors: (i) Data services business (ii) Technology innovation (iii) Sustainable business model. On probing Participant A explicit added that the shift of revenue stream from voice to data services will continues to rise the pace for growth of mobile market. Also Participant A state that significant network technologies enhancements will led to faster data networks and service innovation will improve the customer experience.

In an interview participant D mentioned that *".....mobile services delivery channels such USSD, SMS messaging and Web based access provides limitations to part of the population"*. For instance, rural population suits for USSD and SMS messaging due to low market penetration of smartphones or web enabled phones or GPRS enabled phones. In addition, Participant D said that *"...the rapid growth of smartphones market penetration to disadvantaged community will increase the demand for more and more mobile services in Tanzania"*. Thus, accelerates efforts for scalling up the usage of mobile service across all the areas of economic developement such Agriculture, Education, Healthcare and Financial sectors.

6.2. Potential Mobile Service Segments

Potential of Mobile services cuts across all economic sectors. However, the potentiality differ from one mobile market segemnt to another. Based the interviews conducted by the author, interviewees identified and selected the most potential mobile market segemnts. Table 11 summarizes the results on question of identifying the most potential mobile services segment in Tanzania.

In an interview Participant F said that *"..... mobile service escalating in healthcare services provides positive potential for m-health projects. However, before scaling up to large population there must be a rigorous evaluation to understand community problem and the level of impacts of such investment"*. In other words, mobile services in Healthcare service should address a community technological need in order to get a popular acceptance either at the community level or at the managerial level.

Table 11. Summarizing the answers from the interviewee on identifying the most potential mobile service market segment.

	Agriculture	Education	Healthcare	Financial	Entertainment
Participant A	2	1	3	4	3
Participant B	1	3	4	5	2
Participant C	4	1	2	5	3
Participant D	2	1	5	3	4
Participant F	4	1	3	5	2
Participant E	5	4	3	2	1
Total score	18	11	20	24	15

5= Highest potential business, 1=lowest potential business

Participant D added that ”....evidence for m-Health in Tanzania remains a challenge and in order to control the growth of mHealth projects, we need a comprehensive monitoring and evaluation framework to evaluate the efforts and impacts of the mushrooming mHealth projects in community”. According to Genuchten et al. (2012), assessment of potential in mobile Health is done by focusing on the following barriers to mobile health opportunities:

- Cost-benefit barriers
- Policy barriers
- Barriers related to technical architecture, data interoperability and standard platforms.

Tanzania identified health as one of the governmental priority in her 2025 vision by clearly stating that access to quality healthcare to all individual and access to quality reproductive health services (RHS) to all individual at appropriate age will be provided at affordable cost. However, a survey conducted by the Ministry of Health and Social Welfare (MOHSW) highlighted barriers to healthcare access. These barriers were long distance to Health facilities/hospitals, lack of transport, poor infrastructure and lack of money (Genuchten et al., 2012). However, these challenges open an avenue for the use of mobile services in healthcare sector and promise the improved provision of health services and hence healthier community. According to recent deloitte survey” *healthcare has the most promising new growth channel for 4G services*” (Dolan, 2012). According to the research study conducted by Text To Change (TTC), shows that mobile health services create tremendous potential for healthcare improvement. For

instance in country such as Tanzania, where there is high shortage of health workers approximately one doctor to 50,000 patients ratio and limited infrastructure, mHealth services stays as an only encompassing solution (Genuchten, 2012). Tanzania mobile penetration tallies to 60% national wide, this present a huge demand for mobile services in Healthcare sector (Genuchten et al., 2012). Tanzania also presents high mobile consumption rate with approximately \$21 per month. This accounts for about 20 percent of monthly income. The majority of Tanzanian own at least two SIM cards. Figure 30 below shows Tanzania Teledensity.

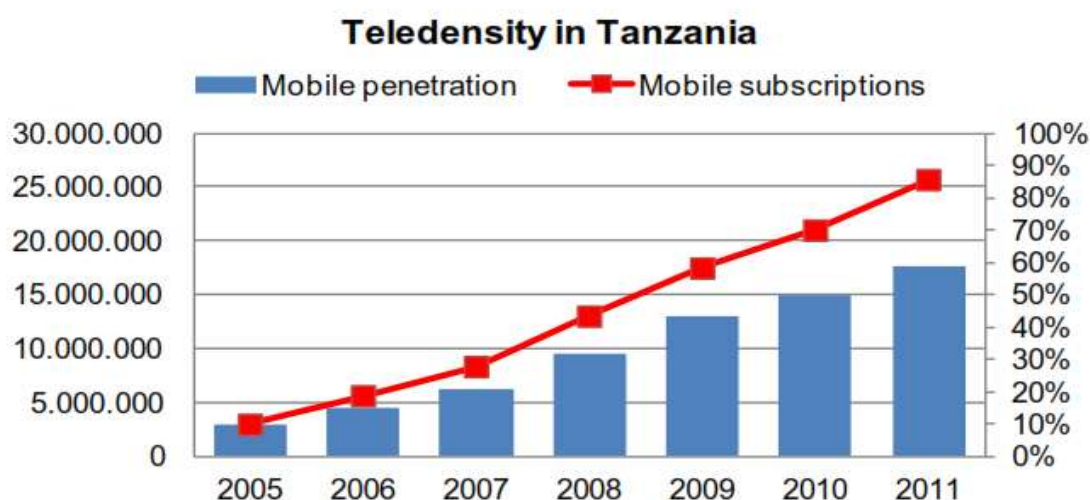


Figure 29. Tanzania Teledensity modified from TAN 2012 Market research.

On the question of identifying potential mobile service segment, Participant C highlighted mobile money and mobile banking as area where investors are currently investing money. However, the most of the current mobile Health services are donor funded project and almost 50 per cent the public health services are still in piloting phase. Although mHealth services are gaining popularity because of huge demand of Healthcare services and Health information. Nevertheless, fails to scale up due to dependency on donor funds which does not last longer. In other words, mHealth services lacks a comprehensive sustainable business model as well as a comprehensive evaluation to understand the impact of mHealth services as compared to investment. Participant C mentioned that ”Health sector is lacking a sustainable business model for mHealth services that can turn things around, if you look at mobile money services and other mobile banking services you will realize everything there runs smoothly without any subsidies injected.”

Participant C added that mobile services have helped revolutionize the banking sectors. In Tanzania, only 9 percent have access to formal banks and 89 percent either have no access to financial services (Bångens & Söderberg, 2008). Based on the analysis on the question about identifying the potential mobile services segments. Generally almost 67

percent of the participants identified financial sector especially mobile money transfer services as the most potential area as shown on Table 14 above. Mobile money services promise for future simply because of the easy involvement of sustainable business model (i.e. revenue generating model) as compared to other mobile services. Participant B said that ".....mobile money services ensures high circulation of money and address the real community problem that everyone was facing on money transfers especially the unbanked people". Hence this ensure good flow of revenue and profit through frequent volume transactions and depending on which position is the player positioned in the value chain. Figure 30 below illustrates a framework for estimating potential business in mobile money services.

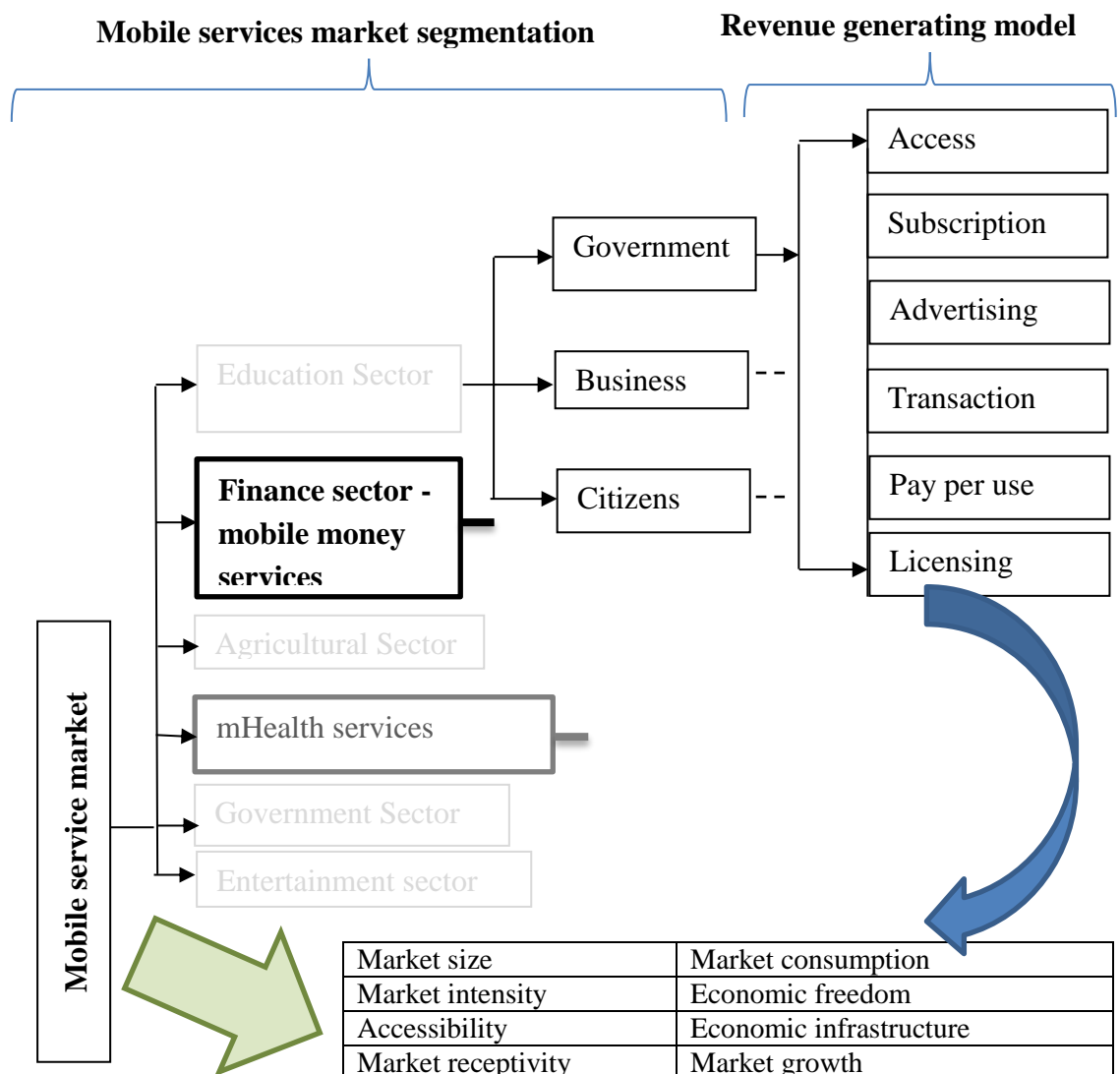


Figure 30. Illustrating a Framework for Estimating Potential Business in Mobile Money services (selected potential mobile services segments).

This Section has discussed potential mobile services segment based on the interviews. According to participants mobile money service segment is the most promising mobile segment now in Tanzania followed by mobile Health. In real sense the other mobile market segments namely agriculture, education and entertainment will soon be the green pasture when Mobile money and mobile Health will reach at saturated stage. Thus, present the future opportunities if the designed mobile solutions in these sectors will be addressing the real community problems that help to develop a sustainable business model. The next Subchapter discusses in more details the mobile money services in Tanzania as well as estimating potential business associated using a developed framework.

6.3. Estimating Potential Business: m-Money Service

Mobile money transfer services in Africa particular Tanzania is linked with too much hype. Mobile payment has shown early success in Kenya, Nigeria and South Africa. It is believed that 80 per cent of African population is unbanked. However, the dramatic adoption of the mobile phones across Tanzania and other African countries speed up motives for investment initiatives in mobile payment operation around the continent. According to Nilsson (2012), a significant percentage of the population in the developing world particularly Tanzania have mobile phones but have no bank accounts. Thus, there are more people who have access to mobile phone than those who have bank account. Therefore, cashless transactions through mobile money are indeed a great alternative. Although differentiated approach is needed and not only “cut and paste” approach in order to overcome unique country challenges. (Businessday, 2013)

Mobile money business in Tanzania has come as savior to unbanked population specifically people living in remote areas. According to Intermedia survey conducted in 2013, 63 per cent of the household covered have access to mobile phones and 55 per cent of the households at least own one active SIM card. Furthermore, 35 percent of households in Tanzania have at least mobile money user and 33 percent of the households have registered for mobile money user (Intermedia, 2013). Being able to send and receive money is of major importance for any community especially in developing world. Thus support for the immense uptake of Mobile Money transfer services in the community at large (Bångens & Söderberg, 2008). According to Bångens & Söderberg (2008), the main money flows are known to be from urban to rural areas where a relatively well-off person to disadvantaged people lives.

According to recent Intermedia survey Tanzania has several mobile money transfer services providers namely M-Pesa, Tigo Pesa, Airtel money, Max malipo and Ezy pesa. Figure 31 below illustrates the market share of the of mobile money services per mobile operators.

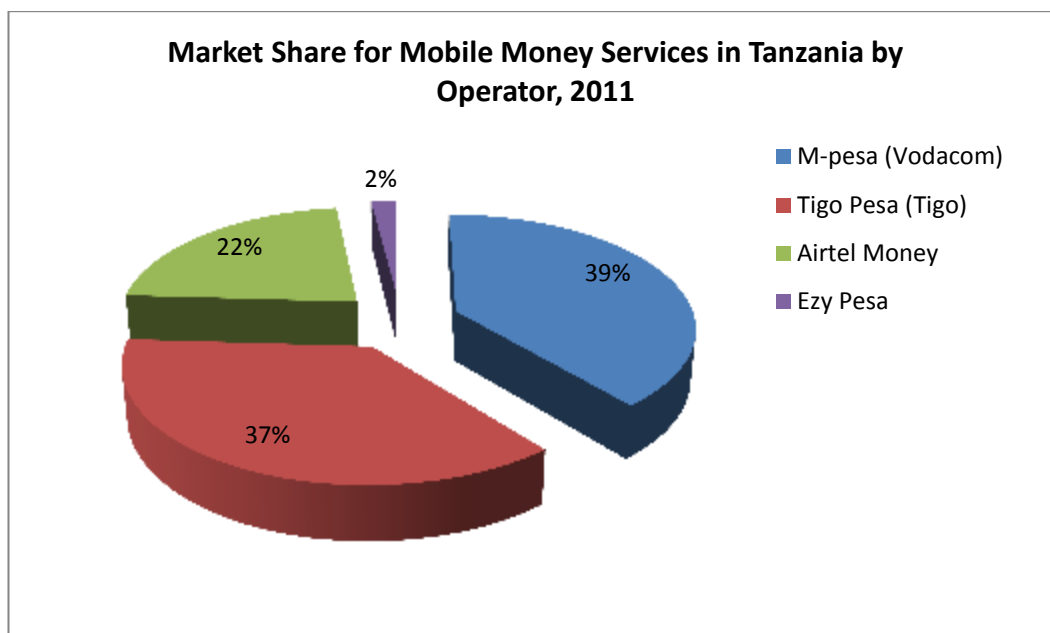


Figure 31. Market Share for Mobile Money Services in Tanzania (adopted intermedia, 2011).

Vodacom under M-Pesa has largest customer base due its dominance on market share and being the first entry in the mobile money business. On the other hand banks have not let their market to be stolen. Currently some few banks have introduced mobile banking services to compete with these mobile money transfer services provider. CRDB bank launched the mobile banking services in 2010 and NMB banking has come up with Pesa fasta. According to Porteous (2006), banks are offering mobile money services to add customer values to normal services provided. In general, they tend to offer mobile solutions as an additional channel. Thereafter, enabling customers to get “a new door” to the similar services as they would have received over the counter. Banks knows exactly that competing head to head with Mobile money transfer services is not healthy for their business. Therefore, banks are now bringing the joint venture approach to make sure that these mobile money transfer services can be integrated with banking systems.

Opportunities for mobile money transfer are still far to be exploited extensively. According to Peter (2010), on AudienceScapes data collected in two years after the launch of M-PESA, the first mobile money service in Tanzania. Evidence shows that only 11.5 percent of Tanzanian adults (2.75 million out of an estimated 23.9 million) had used mobile money service. This compares with a 54.6 percent rate of use among Kenyans two years after the launch of M-PESA. Also recently Tanzania had shown a sharp increase in the number of registrants in mobile money services. Among those who had used mobile services, 63 percent seems to be started in last 6 months which signifies for potential expansion of mobile money services especially in rural areas

where the mobile network operators have started focusing especially on improving coverage and supplying cheap phones. Figure 32 below show mobile phone ownership and access at the household level and the mobile money usage.

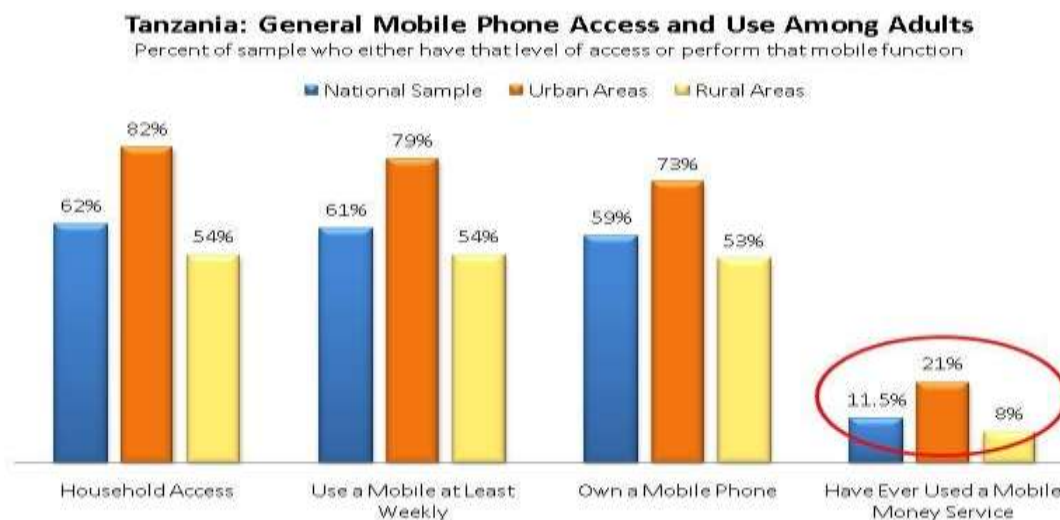


Figure 32. General Mobile Phone Access and Use Among Adults (Adopted from Africa Development Research Brief by Peter, 2010).

There is still huge demand of mobile money services almost across all the economic sectors in the country. According to International Finance Corporation (2010), high payments have contributed significantly in enabling informal economic activity. Early uptake of mobile money transfer services has high demand in rural areas. Thus, strengthen the rural-urban cash flow. Nevertheless, Kenya where 70% of remittances flow from urban to rural areas, Tanzania does not demonstrate a clear dominant remittance pattern. According to Bångens & Söderberg (2008), mobile money transfer services not only bring in convenience and simplifies the process of sending and receiving money at personal to personal transactions but also provides tremendous benefits to micro and small-sized enterprises (SME's) in Tanzania. According to Swisscontact 2010 household survey conducted in five regions in 2010, it is suggested that there are about 2,685,404 SMEs in Tanzania. Mobile money transfer services have brought the following benefits:

- Help SMEs to reduce liquidity and solidity by paying the suppliers on time
- MSEs engaging in mobile money transfer services show certain characteristics For instance, long-term business relationships that build trust
- Saves time and improve the logistic activities

However, there is a need to modify the limitation on the transferred amount of money. Bångens & Söderberg (2008) postulates that adding this market segment to already existing personal to personal mobile money transfer services accounts for potential business in mobile money transfer market. International Finance Corporation (2010) under World Bank group state discussed the business model used by Mobile service providers in Tanzania. Mobile service providers agreed a license fee model. For instance, Vodacom Tanzania pays a fee to Vodafone Global Services per registered M-PESA customer. Based on the traffic of registrants into the service, Vodacom Tanzania pays the proportional amount to the vendor. On the other side, the mobile service provider must have a strong network of agents that provides services to end users. These Agents works on commission fee model as shown in the Table 12 below.

Table 12. Agent Commission Structures in Tanzania (adopted from International Finance Corporation, 2010).

Mobile Money service	Deposit	Withdrawal	Registration	Additional
M-Pesa Tanzania	0.4%	0.6%	\$ 0.37- 1.48	5% of airtime recharge of value

Every agent earns commissions on each deposit, withdrawal and new customer registration. Deposit and withdrawal transactions earn agent a commission of 0.4 percent and 0.6 percent respectively. Not only the commission fee based on transactions but also an agent earns a flat fee that ranges between USD 0.37 and USD 1, 48 per every new customer registration. Incentivizing the agent network, mobile service provider pays 5 percent of the value of airtime sold through the agent. The Vodacom's Managing Director said *"This is attributed to the fact that the service is safe and reliable and available throughout the country"*. (Elinaza, 2012)

According Vodacom Tanzania branding and communications manager, Kelvin Twissa, the total value of transactions on the cellco's mobile money service through M-PESA have passed reached USD 622 million a month (Telegeographical, 2013). In one year Vodacom is estimated to make transactions that has a value of USD 7.50 trillion. This amount is estimated only on 4.9 million registered and active M-Pesa customers. But Vodacom has about 10 million customer base (Wieland, 2013). That being a case in two years to come Vodacom is projected to make almost two times the current transaction value which sums up to USD 15 trillion based on the customer base of more than 10 million.

Business Potential Estimates

- (1) Vodacom made value transactions of USD 622 million in a month end March 2013. (Telegeographical, 2013)
- (2) Vodacom made value transactions of USD 7.5 trillion (622*12) in a year. (Telegeographical, 2013)
- (3) Estimated registered customers mobile money--- → 4.9 million (Wieland, 2013).
- (4) Consumption rate (ARPU) ----- → 1.50 USD (Wieland, 2013)
- (5) Estimated Vodacom mobile subscribers (Market size) --- → 10 million (Intermedia, 2011).

Transactions value for MPESA for calculated and estimated to be USD 7.5 trillion two years to come assumption that Vodacom will reach out to all 10 million customer base with Mpesa service. However, from the Figure 32 which show the market share of mobile money services in Tanzanian mobile market. Mpesa under vodacom leads the market with a share of 39 per cent followed closely by Tigo pesa 37 percent, Airtel money 22 percent and Ezy pesa is 2 percent.

Therefore,

In two years with assumption that the market shares hold as it is 39 percent is projected to account for USD 7.5 trillion. That means,,

By a simple math ratio:

USD 7.5 trillion----- → 39 (Mpesa) percent

USD ? million----- → 37 (Tigopesa) percent

In this equation: Tigo pesa in two year will be having a transaction value of USD 7.12 trillion, Airtel money will be having a transaction value of USD 4.23 trillion and Ezy pesa transactions value will be tallying to USD 0.4 trillion. In general the total transaction value in Tanzanian mobile money services market will tallying to an estimated transactions value of USD 19.23 trillion in 2016. This presents the estimated business potential in mobile money services.

Figure 33 illustrates the framework for estimating business potential in mobile money services.

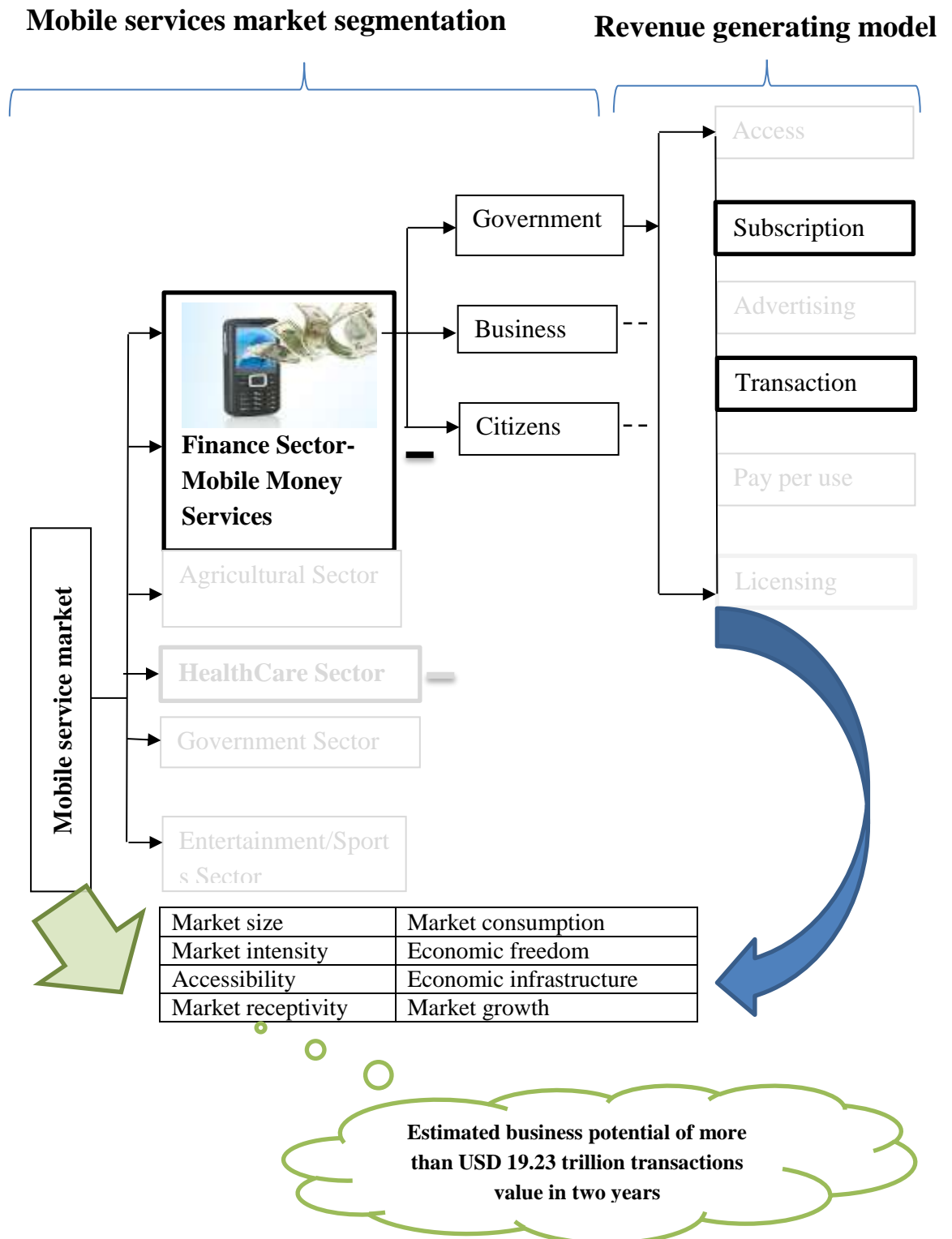


Figure 33. Illustrates the framework for estimating business potential in mobile money service.

The estimates of business potential in mobile money services is based on transactions value across the big mobile service providers that is Mpesa, Tigo pesa, Airtel money and Ezypesa. The estimates show that in two years to come Tanzania mobile money having an accumulated transaction value of USD 19.23 trillion. This value threaten the formal banking business due to facts that the next move for mobile money services provider is to integrate the small scale enterprise (SME's) and big companies in mobile payments and throw away the pay cheques. This will revolutionize the payment landscape for companies and individual firms.

6.4. Analysis of Key Findings

In this section will discuss the key findings of the research study both from the literature review and the interviews. The development of the conceptual framework for estimating potential business in mobile services has focused in three critical area that should not be overlooked by a smart managers/ entrepreneurs. The developed framework put much emphasis on: (1) selecting an appropriate target market segment and identifying the potential market, (2) selecting sustainable business model that ensure revenue generation and mutual benefits in the partnerships (3) screening potential business in external factors such as Market size, Market consumption, Market receptivity, Market growth, Economic infrastructure, Economic freedom, Market intensity and Accessibility. These three steps provides a good road map for managers or entrepreneur looking for taking opportunities either in existing markets or in new market or even starting a a new business. Any company or firm require a good selection of market segment that can be served at a best level and at the same time profitably.

Figure 34 below illustrates the a conceptual framework for estimating business potential in mobile money services as it was extensively discussed in section 6.3.

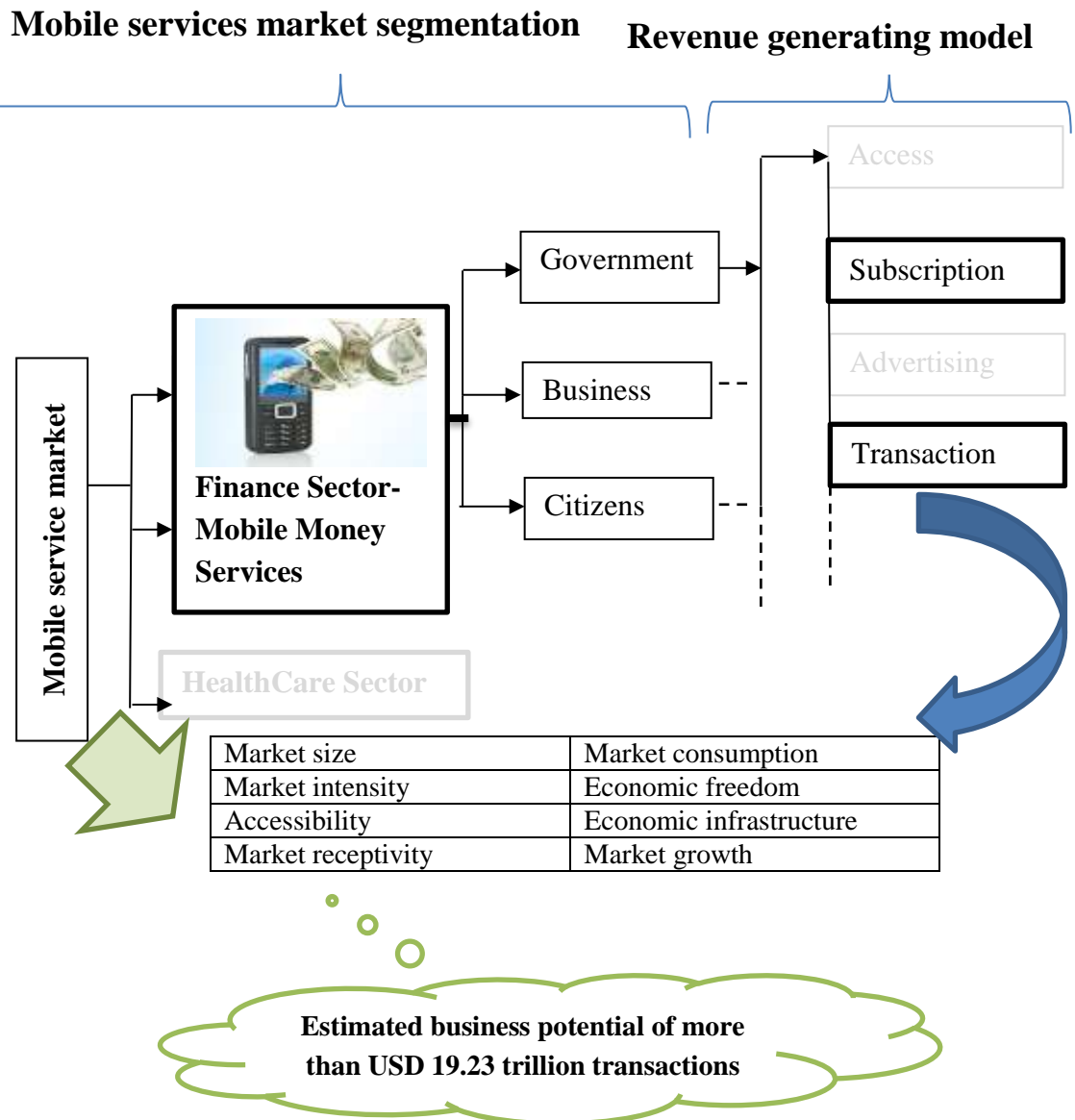


Figure 34. Framework for estimating business potential in mobile money service.

The facts that no any company or firm has the capability or resources to serve all the market diversity customers. Therefore, a developed conceptual framework emphasis on selection of market segment that fit into a company core competence, capabilities and resources. Based on the conducted interview, the participants assisted in identifying the most potential mobile services given the a portifilio of market segments. Almost 67 percent of the experts working in Tanzanian mobile sector interviwed identified Mobile money services as a potential segment areas for investment. Mobile money services segment was followed closely by mobile Health. The use of mobile technology to deliver healthcare and bring public health awareness to the people in need.

For instance, Participant F said that *”Mobile money services are saviour to poor people living in remote areas in which receiving money from a friend or relatives living in town who require 50 to 100 kilometer trip to the nearby bank to queue for some hours but now it is through the phone and the money is on his/her finger tips”*. Participant D added that *” emergence of mobile money services in the market has forced Banking sector to improve on customer care and to adopt technology quickly to respond to competitive forces in the market”*.

Both mobile money and mHealth were ranked highly by the participants. However, mobile money services business is a bit far from the mobile Health services due the fact that there is already well functioning business infrastructure such as legal procedure, security policy, revenue sharing systems in the financial sector as compared to Healthcare sector. Therefore, it vividly easier to involve interseted partners in a mutual benefits partnership and establish a comprehensive business sustainable model for the services. Participants D mentioned that *”challenges facing Healthcare sector particularly in deploying mobile services is that almost more 90 percent of mHealth services are strongly supported by donors funds”*.

This implies the lack of a business sustainable model that show how clearly a private sector can mutually benefits from the services. In long run when donor funds ends the services dies a natural death. However, in responding to competitive rivalry private sectors have started looking for partnership and inniatives for including health content as value added services to the community. Recently, mobile money services through only one mobile service provider Vodacom under M-Pesa makes transactions that tally to a total of TZS 65 bilion a year according to Vodacom Managing director. According to the Bank of Tanzania governor mentioned that mobile transactions value have exploded from TZS 1.8 bilion to TZS 1.7 trillion from 2010 (Telegeographical, 2013). The governor added that

”.....millions of Tanzanians without bank accounts were still able to use mobile payment service to make payments, send remittances and store funds for short periods. Also the institutions have reduced risks of carrying cash, cost savings on travel expenses while M-banking and M-payments has virtually obliterated physical distances in terms of effecting payment of bills among others”. (Communication Africa, 2012) Therefore, mobile money services market segments presents potential business and attracts more investors in Tanzania.

After identification of the most potential mobile segment, the manager has to select a sustainable business model that will ensure revenue generation in the value chain. The sustainable revenue generating model is driven by derived demands. In Business to Business market it is impossible to estimate business potential without throwing an acute eye to see what is the customers of the customers are doing. In a framework

developed, revenue generating models are discussed as the most critical factors in estimating business of mobile services. Based the characteristics of mobile services each mobile service can be identified by the revenue generating models. In mobile money services a combination of revenue generating models are applied in order to adhere to mutual benefit partnership in the value chain. In estimating business potential in mobile money services two revenue generating model were applied. The potential of mobile money service is estimated based on the transactions value a the providers perform in a period of time. In this case each transaction has a fee to be completed and meanwhile the agents and other players in the value chain has an agreed percentage deduction that given the profit margin at the end of the business. Another revenue generating model involved in the mobile money service it the subscription, this model generates revenue in two approaches. First is when a customer join a service and pay a single fee for joining. Second revenue model is based on subscribing for time and package. For instance, in mobile money services each subscription an agents get a percentage of income. Thus, generates revenue across the partners in the value chain.

The other important part where the framework has explored is the market assesement factors. In estimating the potential business of mobile services assessment factors plays an a crucial role in ensuring the market is attractive to investors. A developed conceptual framework covers nine dimensions which intends to screen the market and measure the potential of the market. First, the market size measures the total population in the market segment. The market segment that was identified by the interviwees account for a total of more than 20 million mobile subscribers in Tanzania in 2013. Therefore, the number indicates the target market for mobile money services. According to (TCRA) (2011), the number of mobile subscribers is expected to explode up to 37 million in 2016. Second, accessibility, according to Kotler & Keller (2009), market segment is considered potential if it is reachable, accessible and quantifiable. Therefore, no matter how attractive the market is, it should be reachable and accessible to make economic sense. Tanzanian mobile money services target segment is distributed into locations: rural covers approximately 80 percent and urban 20 percent of the total population.

Third, market growth, telecommunication industry in Tanzania is skyrocketing as the number of mobile subscribers is increasing drastically and more and more demands for services is increasing. Fouth, market consumption rate, the middle class population accounts for 40 percent of the population and the recent ARPU average revenue per user is \$1.50 (Wieland, 2013). Fifth, market intensity measures increasing demand of products According to (TCRA) (2011), the demands for mobile services growth increase by 15% per annually. Sixth, economic freedom measure for taxation policy and capital flow and investment. Tanzanian mobile service market has shown the high potential of growth despite the facts that the country has poor infrastructure

especially in rural areas. Also, the Government has enforced economic freedom through reduction of taxes especially on ICT equipment imported in the country to set fair ground for competition in the industry. Seventh, According to Bank of Tanzania (BOT) in 2011, Tanzania accrued annual average imports of USD 5834.1 million and with a GDP per capital of USD 600 which is subjected to growth rate of 7% per year. These data indicates market receptivity and intensity in Tanzania. Eighth, Tanzanian mobile services market has proven to be potential, according to World Bank ranking, Tanzania is seventh country in Africa to attract Telecoms investors. The statistics shows that in between 1998 and 2008, \$1.4 trillion (TZS 2,240 trillion) was injected in mobile service market (Special report, 2011). A developed conceptual framework covers all these factors to ensure that the estimated business in mobile money services is screened and presents attractive market for investors.

This Chapter has discussed in details the market trends that are prevailing in Tanzanian mobile services market and complemented by opinions from interviews conducted by the author. Also this Chapter identifies the potential mobile services market segments. In addition, this Chapter apply the developed conceptual framework in Tanzanian mobile money segment to estimated potential business in mobile money services business. Finally, this Chapter provides the analysis of key findings. The next Chapter concludes the long journey of this research study by a summary of the research study and discussing managerial implications of this key findings as well as proposing a further research study.

7. CONCLUSIONS

7.1. Summary of the Research Study

Recent convergence of mobile and communication technologies has resulted to mobile services. The fast adoption of the mobile services has been accelerated by the high market penetration of mobile phones both in developed market and underdeveloped market. Mobile services business has not gained popularity for nothing but rather mobile services have significant benefits both in B2B and B2C markets by enhancing mobility, accessibility and efficiency in business processes. Mobile industry in Tanzania is currently regarded as the fast growing sector after overtaking other sectors such as Mining and Agriculture in contribution to the national economy. Deregulation, good communication and versatile regulatory policy have attracted many global Telecommunication companies to invest in this fast growing market. However, poverty, poor infrastructure and power instability leads to digital divide between people living in urban and those at the bottom of the pyramid. These challenges present great business opportunities for global or foreign companies that are ready to conduct thorough research to explore, evaluate and exploit prevailing potential business.

The objective of this research study was to develop a conceptual framework for estimating potential business in mobile services in Tanzanian to generate business opportunities and attracts investors. Literature review has supported the construction of the framework and the empirical part have played a role in testing the framework in Tanzanian mobile money services business to estimate business potential. The mobile money business potential have been estimated based on the transactions value being made in year and extrapolated to two years to come. The estimated value of a total of USD 19.23 trillion is projected for two years depending on the dramatic growth of mobile money services users and potential areas of diversification such as small scale enterprises and big companies. The conceptual framework emphasis more on three critical areas: (1) selecting an appropriate target market segment, (2) a sustainable business model that ensure revenue generation and, (3) screening potential business in external factors such as Market size, Market consumption, Market receptivity, Market growth, Economic infrastructure, Economic freedom, Market intensity and Accessibility. The conceptual framework developed is for managers and entrepreneurs and will be used as a guidance tool in estimating potential business in mobile service market.

7.2. Managerial Implication and Further Research

Exploring and estimating potential business are crucial activities for managers and entrepreneurs looking to excel in dynamic and uncertain business environment. Estimating business potential is an old concepts although no much scientific studies have been done. Therefore, a major challenge faced in this reseach study was on scantiness of literature. However, a developed conceptual framework for estimating business potential adds a new dimensions on evaluating business potential in mobile services market. The framework will be used as guidance tool for managers to assess and evaluate the business. The framework touch base on the important areas for a manager to focus on when estimating business potential in mobile services. First, identifying a potential target market. Second, selecting an appropriate sustainable business model that will show clearly how a firm is generating revenue at the same time ensuring the model fits well in a mutual benefit partnership. It is evident that in today's business environment no any company can work on isolation. Therefore, a well thoughtoff business model is very important to keep the value chain active and motivated. Third, market potential assessment factors namely: Market size, Market consumption, Market receptivity, Market growth, Economic infrastructure, Economic freedom, Market intensity and Accessibility. These factors are essential in ensuring the market potential is assessed and provides a sense of attractiveness to investors.

Despite the a good roadmap the developed framework provides to managers still estimation of business potential in high-tech industry is very challenging. Mobile industry is characterised by fast technological change and products obsolete is unavoidable. Also timely responses to price changes has become a competitive weapon. Therefore, manager working in this industry should have skills and capability to monitor the changes of technology as well as price changes due to competitive rivalry. This conceptual framework provides a best practices for managers to follow in estimating business potential expecially in mobile business and complements a body of knowledge to managers, businessman and entrepreneurs as well as academicians.

This research study has provided a conceptual framework that will help managers to estimate potential business for mobile services business especially for the new entrants in the market or for business expansion. However, sometimes high business potential business does not always mean profitable business unless opportunities are explored, evaluated and exploited effectively. Therefore, for managers there is much to be done to make green account books. This reserach study have been conducted in a limited literature especially the literature on business potential estimation. There is a need for reseachers to explore and build a strong base for a body of knowledge on business estimation theories. Specifically further research study should be conducted to clearly understand the impact of mobile services both at the community level and managerial level in order to account for large investment. Separate studies one focusing on

community and the other at the managerial or business to business level in order to comprehensively evaluate whether the value of impact relates to the value of resources and funds invested particularly to mobile health programs.

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APPENDIX 1- QUESTIONNAIRE



TAMPERE UNIVERSITY OF TECHNOLOGY

TAMPERE UNIVERSITY OF TECHNOLOGY

Department of Industrial Management

QUESTIONNAIRE

Name: Mr. Mutasingwa Saulo Kaimukilwa
Program of Study: Business and Technology
Subject: Master Thesis
Title: Estimating Potential Business in Tanzanian Mobile Services Industry

I'm a student pursuing Master's of Science in Business and Technology at the Faculty of Business and Technology Management, Tampere University of Technology, Tampere, Finland. I'm currently conducting a research study on mobile services business in Tanzania particularly estimating potential business in Tanzanian mobile service industry.

This research study is the fulfillment of my master's studies. Therefore, I'm assuring you this research study is purely academic work.

It is my expectations that the key findings of this research study will be useful for academicians and Tanzanian mobile service industry stakeholders.

I'm kindly requesting your cooperation in this interview in order to achieve this objective.

QUESTIONS

1. How long have you been in mobile service industry?
2. Do you see any significant changes since you joined the industry?
3. What are the challenges facing Tanzanian mobile market?
4. What are the current mobile market trends?
5. Where do you see the mobile service market in 5 to 15 years to come?

6. Among the following areas, where do you think there is huge potential for mobile services businesses (prioritize: 5 for highest potential business and 1 lowest potential business)
- a) Finance (m-Banking, mobile money)
 - b) Healthcare sector (m-Health programs)
 - c) Education sector (m-learning, m-library)
 - d) Agricultural sectors
 - e) Entertainment sectors
7. What are lessons learnt of doing business in Mobile Service industry in Tanzania?

*******END*******

Thanks

APPENDIX 2- Tanzania Demographics Indicators

Indicator	Data
Population	44.9M (Census data, 2012)
Age structure	0-14 years: 42% (male 9,003,152/female 8,949,061) 15-64 years: 55.1% (male 11,633,721/female 11,913,951) 65 years and over: 2.9% (male 538,290/female 708,445) (2011 est.)
Population growth rate:	2.2 % (2011 est.)
Birth rate	32.64 births/1,000 population (2011 est.)
Death rate	12.09 deaths/1,000 population (July 2011 est.)
Urbanization	Urban population: 26% of total population (2010) Rate of urbanization: 4.7% annual rate of change (2010-15 est.)
Sex ratio	At birth: 1.03 male(s)/female Under 15 years: 1.01 male(s)/female 15-64 years: 0.98 male(s)/female 65 years and over: 0.77 male(s)/female Total population: 0.98 male(s)/female (2011 est.)
Infant mortality rate	Total: 66.93 deaths/1,000 live births Male: 73.7 deaths/1,000 live births Female: 59.95 deaths/1,000 live births (2011 est.)
Life expectancy at birth	Total population: 52.85 years Male: 51.34 years Female: 54.42 years (2011 est.)
Religions	Mainland - Christian 30%, Muslim 35%, Indigenous beliefs 35%; Zanzibar - more than 99% Muslim
Languages	Kiswahili or Swahili (official), English (official, primary language of commerce, administration, and higher education),

	Arabic (widely spoken in Zanzibar), many local languages
Literacy	Definition: age 15 and over can read and write Kiswahili (Swahili), English, or Arabic Total population: 69.4% Male: 77.5% Female: 62.2% (2002 census)
(CIA, 2011)	

APPENDIX 3- Mobile market advertisements for different mobile operators

Mobile operators	Advertisement for Mobile services
Vodacom	<p>“Use M-PESA to pay your bills”</p> <p>“Call for ½ Tsh per second”</p> <p>“500 Tsh a day for mobile internet”</p> <p>“If you use Vodafasta to buy airtime, you get double airtime”</p> <p>“Promotion about how you can get internet services for one month for 178,999 Tshs”</p> <p>“Vodaphone voice box”</p> <p>“Welcome to Vodacom M-PESA shop”</p>
TIGO	<p>“Buy airtime for Tsh225 to get 50 SMS for free and 2 minutes airtime”</p> <p>“When you buy airtime using Tigo Pesa, you get double the airtime”</p> <p>“If you send money with Tigo Pesa you get free airtime”</p> <p>“If you recharge your account with Tigo Pesa, you get free minutes for calling”</p>
AIRTEL	<p>“When you send 9 SMS’s you get 100 SMS’s free”</p> <p>“Call for ½Tsh per second during day time and ¼Tsh per second at night”</p> <p>“If you register with Zap you can pay your bills (water, DSTV) through this program”</p>
ZANTEL	<p>“If you use Zantel Pesa to buy Ths 2,000 airtime, you get double airtime”</p>

	<p>“If you buy a modem from Zantel, you get interesting internet rates”</p> <p>“Zantel can offer you a Zantel line/number with the same last 6 digits as your other lines”</p> <p>“EpicNation Promotion” – Sim-up with the coolest crew in town – free entry to a club</p> <p>and buy one get one free offer from a retailer”</p>
(Tanzania tracking study, 2011)	

APPENDIX 4- Summary of evolution of mobile communication systems

Mobile Technology Generation	Different mobile communication technology	Mobile service and Quality
First Generation(1G) – 1980	<ul style="list-style-type: none"> -Total Access Communication System (TACS) – (Europe) -Nordic Mobile Telephone (NMT) system – (Europe) -Advanced Mobile Phone System (AMPS)-(USA) 	<ul style="list-style-type: none"> -Voice analogue telephony -Paging - Low level of security - Limited Capacity
Second Generation(2G)- 1990	<ul style="list-style-type: none"> -Global System for Mobile communication (GSM) – Europe - Intermediate Standard (IS-95 and IS-136) – USA - Personal Digital Cellular (PDC) – Japan 	<ul style="list-style-type: none"> Voice digital telephony - Roaming - Call forwarding - Short Messaging Service (SMS) – 160 char - Low data rate
2.5G ~ 2.75G - 1996	<ul style="list-style-type: none"> -General Packet Radio Service (GPRS) – Stage 1 (2.5G) -Enhanced Data Rate for GSM Evolution (EDGE) – Stage 2 (2.75G) 	<ul style="list-style-type: none"> -Multimedia Messaging Service (MMS) - Enhanced Messaging Service (EMS) – simple media - Location-based services - Access to Internet (Web browsing) - Higher data rate
Third Generation (3G) - 2002	Universal Mobile Telecommunication System (UMTS)	<ul style="list-style-type: none"> Virtual Home Environment (VHE) feature - Video on demand -High speed

		<ul style="list-style-type: none"> - Video calls and chat - Mobile TV - Broadband wireless data - High speed internet access
<i>Fourth Generation(4G, beyond 3G) – 2012- 2015</i>	Worldwide Interoperability for Microwave Access (WiMax)	Premium quality <ul style="list-style-type: none"> - High security - Premium Speed -Digital Video Broadcasting (DVB) -Interoperability with existing wireless standards
(Park & Adachi, 2007; Al-Debei & Avison, 2008)		