THE EFFECTS OF TECHNOLOGICAL INNOVATION ON COMPETITIVE ADVANTAGE: A CASE OF SAFARICOM PLC CUSTOMERS IN NAIROBI COUNTY

BY

SHEILA OWITI

UNITED STATES INTERNATIONAL UNIVERSITY – AFRICA

SUMMER 2019
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A Research Project Report Submitted to the Chandaria School of Business in Partial Fulfilment of the Requirements for the Degree of Masters in Business Administration (MBA)

UNITED STATES INTERNATIONAL UNIVERSITY – AFRICA

SUMMER 2019
STUDENT DECLARATION

I, the undersigned, declare that this is my original work, and has not been submitted by any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: _____________________________  Date: _____________________________

Sheila Owiti (ID 606280)

The project has been presented for examination with my approval as the appointed supervisor

Signed: _____________________________  Date: _____________________________

Fred Newa

Signed: _____________________________  Date: _____________________________

Dean, Chandaria School of Business
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ABSTRACT

The purpose of this study was to investigate the effects of technological innovation on competitive advantage in the telecommunications industry in Kenya, from the perspective of Safaricom PLC customers in Nairobi county. The study was guided by general and specific objectives that determined the extent to which technological innovation affects competitive advantage.

The study employed a descriptive survey research design, with the target population being drawn from a cross section of Safaricom customers in Nairobi. The target population comprised of 380 Safaricom customers in Nairobi from the following eight areas: Westlands, Kilimani, Kileleshwa, Langata, Pipeline, Embakasi, Roysambu and Imara Daima. Cluster and stratified random sampling were the probability sampling techniques used to select respondents to participate in the study. The study used structured questionnaires to collect primary data, which was analyzed using the Statistical Package for Social Sciences (SPSS) version 24 for descriptive and inferential statistics. Tables and figures were used to present the data collected for ease of understanding and analysis.

The findings of the study revealed a significantly positive relationship between product innovation and competitive advantage, therefore an increase in product innovation would lead to an increase in competitive advantage. Majority of customers agreed that Safaricom PLC are innovative in terms of product innovation, and that Safaricom PLC’s products have an impact on society. However, a vast majority of customers were of the opinion that Safaricom products were not the newest in the market in terms of customer preference.

The study further revealed a positive relationship between service innovation and competitive advantage, hence an increase in service innovation would lead to an increase in competitive advantage. Majority of customers were in agreement that Safaricom offers innovative services, as well as a wide array of services compared to its competitors, and that Safaricom PLC were innovative in terms of their services. However, a large majority of Safaricom customers were not willing to pay a premium for an innovative Safaricom service.
With regards to market innovation the study revealed a positive relationship between market innovation and competitive advantage. Majority of customers agreed that Safaricom carries out aggressive marketing campaigns, Safaricom PLC’s products and services are appealing and are widely available and that Safaricom’s products are well positioned in the market in comparison to Safaricom PLC’s competitors. However a large number of customers disagreed that Safaricom PLC’s products and services and competitively priced in comparison to the those of their competitors.

The multiple regression equation, however, illustrated that taking product innovation, service innovation and marketing innovation into account and other factors held constant competitive advantage decreased and all the co-factors were significant.

The study concluded that market innovation had the most significant effect on Safaricom PLCs competitive advantage. The study further concluded that service innovation had the second most significant effect on Safaricom PLC’s competitive advantage. However product innovation had the least significant effect with regards to Safaricom PLC’s competitive advantage.

The study recommended that Safaricom PLC should continually engage in product innovation to better understand customer needs, and develop products that are suited to customer preferences; as well as work towards developing products that are better than those of the competition, thereby maintaining its competitive advantage. Regarding service innovation Safaricom PLC should continually measure and analyze its service offerings in order to increase service efficiency, and service quality, Safaricom PLC should also market its services effectively for customers to better understand the service offerings, and the value their services add to the customer. With regard to recommendations for market innovation Safaricom PLC should increase its focus on market innovation by developing new marketing techniques that involve modifications in terms of its product and service design, its pricing strategy, its product and service offers and its promotional activities.

It is recommended that further studies be undertaken to understand both staff and consumer perspectives on the impact of technological innovation on competitive advantage across Kenya. Comparative studies could be undertaken to investigate the effects of technological innovation and competitive advantage on multiple telecommunication players in the Kenyan market.
ACKNOWLEDGEMENTS

I would like to show my sincere gratitude firstly, to God Almighty, for having given me the opportunity to pursue my Masters in Business Administration at the United States International University – Africa, for the excellent physical health and the ability to succeed in the attainment of my Master’s Degree. To my supervisor, Dr. Fred Newa thank you for the unwavering and untiring guidance, support and time you spent to sharing your vast knowledge with me. I am truly grateful. To my family and friends, thank you for your unwavering support. Special thanks go to my MBA study and support group, who were there to encourage and support me through this process.
DEDICATION

This project is dedicated to my late father John Fred Agwingu Owiti and to my Sister, Rita, who have been pillars of strength in my life and who showed me that no goal in life is not attainable, and all that is required is focus and determination.
# TABLE OF CONTENTS

STUDENT DECLARATION .............................................................................................................. ii
COPYRIGHT .................................................................................................................................. iii
ABSTRACT ..................................................................................................................................... iv
ACKNOWLEDGEMENTS ................................................................................................................ vi
DEDICATION .................................................................................................................................. vii
TABLE OF CONTENTS ................................................................................................................ viii
LIST OF TABLES .......................................................................................................................... x
LIST OF FIGURES ........................................................................................................................ xi
LIST OF ACRONYMS AND ABBREVIATIONS ........................................................................... xii

CHAPTER ONE .............................................................................................................................. 1
INTRODUCTION ............................................................................................................................ 1
1.1 Background of the Study .......................................................................................................... 1
1.2 Statement of the Problem ....................................................................................................... 6
1.3 General Objectives ................................................................................................................ 8
1.4 Specific Objective .................................................................................................................. 9
1.5 Rationale of the Study ......................................................................................................... 9
1.6 Scope of the Study ............................................................................................................... 10
1.7 Definition of Terms ............................................................................................................. 11
1.8 Chapter Summary ............................................................................................................... 11

CHAPTER TWO ............................................................................................................................ 13
2.0 LITERATURE REVIEW .......................................................................................................... 13
2.1 Introduction ......................................................................................................................... 13
2.2 Effects of Product Innovation on Competitive Advantage ................................................ 13
2.3 The Effects Service Innovation on Competitive Advantage .............................................. 19
2.4 The Effects of Market Innovation on Competitive Advantage ........................................ 25
2.5 Chapter Summary .............................................................................................................. 31
CHAPTER THREE ..................................................................................................................32
3.0 RESEARCH METHODOLOGY ........................................................................................32
3.1 Introduction ..................................................................................................................32
3.2 Research Design ..........................................................................................................32
3.3 Population and Sampling Design ................................................................................32
3.4 Data Collection Methods ............................................................................................36
3.5 Research Procedures ...................................................................................................37
3.6 Data Analysis Methods ................................................................................................38
3.7 Chapter Summary ........................................................................................................39

CHAPTER FOUR ..................................................................................................................40
4.0 RESULTS AND FINDINGS ............................................................................................40
4.1 Introduction ..................................................................................................................40
4.2 General Information ....................................................................................................40
4.3 The Effects of Product Innovation on Competitive Advantage ....................................45
4.4 Effects of Service Innovation on Competitive Advantage ...........................................50
4.5 The Effects of Market Innovation on Competitive Market .............................................54
4.6 Chapter Summary ........................................................................................................59

CHAPTER FIVE ...................................................................................................................60
5.0 DISCUSSION CONCLUSIONS AND RECOMMENDATIONS ................................60
5.1 Introduction ..................................................................................................................60
5.2 Summary .....................................................................................................................60
5.3 Discussion ....................................................................................................................62
5.4 Conclusions ................................................................................................................67
5.5 Recommendations .......................................................................................................68

REFERENCES ....................................................................................................................70
APPENDICES .....................................................................................................................83
APPENDIX I – COVER LETTER .......................................................................................83
APPENDIX II: QUESTIONNAIRE .....................................................................................84
APPENDIX III: NACOSTI PERMIT ..................................................................................89
LIST OF TABLES

Table 3.1: Population Distribution .......................................................................................................33
Table 3.2: Sampling Frame ..................................................................................................................34
Table 3.3: Sample Size Distribution ....................................................................................................36
Table 4.1: Response Rate .....................................................................................................................40
Table 4.2: Reliability Statistics ............................................................................................................41
Table 4.3: Safaricom Subscriber .........................................................................................................43
Table 4.4: Extent of Familiarity with Safaricom Product Innovations ..............................................46
Table 4.5: Frequency of Usage of Safaricom Product Innovations ..................................................47
Table 4.6: Effects of Product Innovation on Competitive Advantage ..............................................48
Table 4.7: Correlation between Product Innovation and Safaricom PLCs Competitive Advantage .............................................................................................................................................................................49
Table 4.8: Regression between Product Innovation and Competitive Advantage Model Summary .............................................................................................................................................................................49
Table 4.9: ANOVA of Product Innovation and Competitive Advantage ...........................................50
Table 4.10: Coefficients of Product Innovation and Competitive Advantage ......................................50
Table 4.11: The Effects of Service Innovation on Competitive Advantage .........................................52
Table 4.12: Correlation between Service Innovation and Competitive Advantage ............................53
Table 4.13: Regression between Service Innovation and Competitive Advantage ..............................53
Table 4.14: ANOVA of Service Innovation and Competitive Advantage ............................................53
Table 4.15: Coefficients of Service Innovation and Competitive Advantage ........................................54
Table 4.16: Market Innovation on Competitive Market .........................................................................55
Table 4.17: Correlation between Market Innovation and Competitive Advantage ............................56
Table 4.18: Regression between Market Innovation and Competitive Advantage ............................56
Table 4.19: ANOVA of Market Innovation and Competitive Advantage ............................................56
Table 4.20: Coefficients of Market Innovation and Competitive Advantage ........................................57
Table 4.21: Model Summary of Competitive Advantage and Its Co-Factors .....................................57
Table 4.22: ANOVA of Competitive Advantage and its Co-factors ......................................................58
Table 4.23: Coefficients of Competitive Advantage and Co-factors ....................................................59
LIST OF FIGURES

Figure 4.1: Gender ........................................................................................................41
Figure 4.2: Level of Education ..................................................................................42
Figure 4.3: Place of Residence ..................................................................................42
Figure 4.4: Age ............................................................................................................43
Figure 4.5: Duration of being a Safaricom Subscriber .............................................44
Figure 4.6: Safaricom Line as Primary or Alternate Line .......................................44
Figure 4.7 Product Innovations that Safaricom Customers are Familiar with ..........45
# LIST OF ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAK</td>
<td>Communications Authority of Kenya</td>
</tr>
<tr>
<td>EUROSTAT</td>
<td>Statistical Office of the European Communities</td>
</tr>
<tr>
<td>FMCG</td>
<td>Fast Moving Consumer Goods</td>
</tr>
<tr>
<td>TICs</td>
<td>Technological Innovation Capabilities</td>
</tr>
<tr>
<td>SMEs</td>
<td>Small and Medium Enterprises</td>
</tr>
</tbody>
</table>
CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Tavassoli & Karlsson (2015) found that in today’s business world, innovation is one of the most essential strategic decisions for every organization to pursue. It is one of the most important instruments that organizations can use to enter new markets, to increase market share, and to strengthen their competitive advantage. The strong focus on innovation is driven by increased competition on both a domestic and global scale. Due to rapidly evolving technologies and competitive strategies, the value of products and associated services in the market is greatly affected. This, therefore, suggests that innovation, which is considered as the transformation of concepts, ideas, information and knowledge leads to increased competitiveness and sustained competitive advantage, and is a necessary component of an organization’s strategies.

Caldwell & Anderson (2017) citing Porter (2008) highlighted that in the pursuit for competitive advantage and profits, firms have adopted the supposition that they must compete based on lower pricing, a unique innovation related differentiation in products and services, or by filling a niche in the market that other competitors in the market may have disregarded or overlooked. Caldwell & Anderson (2017) further argued that, organizations are not in the era when they achieve and sustain competitive advantage through their products alone. Organizations are currently operating in an environment with multiple players, and no longer compete individually, but as part of value-adding supply chains, compromised of multiple organizations, people, and processes. With products, processes, or people, and with individual organizations or supply chains, the law of the competitive business jungle is to innovate or die.

Porter (1985) as cited by Afande (2015) affirmed that every firm possesses a competitive strategy, which is either official or unofficial in their respective market(s). The organizations that succeed and grow exponentially are those that develop and use innovative solutions, as this is where a substantial percentage of the firm’s income is generated by new or high-quality improved products and services. Afande (2015), continued to argue that the crux of strategy is in a firm creating a unique and valuable position rooted in systems of activities that are much more difficult to imitate or match. Afande (2015) further contended that a firm must differentiate itself from its rivals in
order to deliver a unique bundle of benefits to its customers. Strategy is key because there is not only one ideal position in the market, an organization consequently, needs a strategy that leads to a sustainable advantage in order to differentiate itself, otherwise there will be a risk of being imitated. These organizations also have to demonstrate their capacity to adapt to turbulence or change in the business environment so as to maintain their competitive advantage (Ionescu & Dumitru, 2015).

Firms are now beginning to care about innovation and their ability to innovate, the ability to innovate is what their future is said to depend on (Trott, 2017) citing Christensen (2003). Schramm (2017) suggests that technological innovation has been an ongoing process since the beginning of commerce, which allowed for the transformation of ideas and knowledge into new and profitable products, services and processes. Schramm (2017) further observed that the term “technological innovation” came into use in the 1950s, detailing a fusion of the works of Maclaurin and Schumpeter and may have been devised by Maclaurin, who often referred to ‘technological innovation’ as ‘technological change.’ In many industries and organizations, technological innovation is now seen as a paramount driver of competitiveness.

Schramm (2017) continued to maintain that, the globalization of markets has played a role in increasing the significance of innovation in organizations. Competition from foreign producers and manufacturers has compelled organizations to continuously innovate in order to produce differentiated products and services. When organizations introduce new products and services, they are able to manage and protect their margins, while at the same time investing in process innovation that helps the organization to lower its costs. Janssen, Stoopendaal & Putters (2015) classified innovation into two words, novelty and newness and alluded to the fact that innovation means there is something new that is applicable

Molina, Andres & Guerrero (2017) citing Naranjo-Valencia, Jiménez, & Sanz-Valle, (2012) observed that, although there are multiple definitions of innovation, it is important to clarify that the term can be linked with products, services or processes where the "new" element is in most definitions as found in Oslo Manual (2005) which defined innovation as the introduction of a new or improved product (good or service), a process, a new marketing approach or a new organizational approach in the internal practices of an organization.
Porter (1985) asserted that technological innovations have critical strategic effects for individual organizations, and have the potential to greatly influence industries as a whole. Porter (1985) however, implied that not all technological changes are beneficial to organizations and industries. Technological change is important if it has a positive impact on competitive advantage and industry structure. High use of technology does not guarantee a firm’s profitability. Porter (1985) further observed that many organizations have been able to thrive in their industries due to technological innovations, that they were able to take advantage of. Technological innovation is one of the most pertinent factors that changes the rules of competition, however, regardless of the importance of technological innovation, the relationship between technological innovation and competition is usually misconstrued. Due to the increasing success of foreign competition, which is based on technological innovation, many firms across the world are now investing in technology. Innovation can have important strategic consequences for both low-technology as well as, high technology firms.

Porter (1985) further postulated that technological change plays a critical role in competition, predicting the path of technological evolution is crucial in allowing a firm to anticipate technological changes in its industry or market, and in so doing improving its position. In support of Porter (1985), Michaux, Cadiat & Probert (2015) emphasized that technological change is seen as a key factor that drives competition, as it can have an effect on industry structural change, as well as play a role in creating new industries. Technological change is a great equalizer, as it can negatively impact the competitive advantage of renowned firms that are market leaders, and propels other firms to the forefront of their industries. As well stated by Porter (1985) ‘Everything a firm does involve technology of some sort’. Technological innovation capabilities (TICs) are critical factors of innovativeness and thereby competitiveness. In today’s world, where there is rapid advancement in technology, competition has risen to a global scale, the needs and expectations of consumers are becoming increasingly difficult to predict and are constantly changing, and product life cycles are becoming shorter (Ince, Imamoglu & Turkcan 2016).

According to Casadesus-Masanell & Zhu (2013), as cited by Molina Andres & Guerrero (2017) innovation is widely seen as is the lifeblood of business, and that organizations that are able to innovate faster and better than their rivals, attain competitive advantage in their market(s) or industries. It is assumed that new products and technology are the areas
in which innovation is important to organizations. It is important to note that there are a number of reasons why innovation is becoming increasingly important. Some of the reasons include globalization, technology, changing social trends changing workplace environments, and increasing customer expectations all feed the need to “innovate or die.” Innovation can be classified into five distinct types, based on the object on which it is carried out the implementation of innovations: products, production methods, supply sources, markets and organizational structures. In addition, the definitions for innovations which respond to the nature in which they are analyzed has led to two types of innovation namely technical and other administrative. With regards to technical innovation all activities carried out on products, services or processes involving the implementation of a new concept for improvement, are grouped while in administrative innovation all changes are made on the organization as a whole to cater for holistic transformation of the organization structure.

According to Grosz (2014), the new concept of innovation, as defined by the revised Oslo Manual (2005) innovation can be divided into three main categories of innovations: product/service, process, market and organizational innovation. The focus of this study will be on product innovation, service innovation and market innovation. Product innovation is a critical element in the strategy of any firm, firms must realize the need for constant change and improvements to product design. In previous decades, markets were stable, meaning that new product development did not change frequently. Currently, product life cycles are changing faster than ever before. Innovative products are fast becoming critical in industries where through innovative products, customers benefit from either a new feature, design or function. Innovative and competitive firms no longer offer similar products or compete based on price and quality. In the case of technical companies, the unavoidable trend is to offer differentiated products in order to gain competitive advantage (Nuryakin, 2018).

Grosz, (2014) points out that product innovation can employ new information, technology, or can be created based on new uses or combinations of current knowledge or technologies. Grosz, (2014) further describes a product, as both a good and a service and expounds that, product innovations comprise of new product and service introductions, and substantial improvements or enhancements in the features or user characteristics of current products and services. Products that are considered new are those goods and services that vary significantly in their features or intended uses from products previously
produced by the organization. Significant enhancements to current products can occur through changes in materials, machinery and other components that improve performance.

Service innovation has varying definitions from different authors, Metcalfe & Miles (2000) referred service innovation as a combination of reproduced innovations and small non-reproduced variations to solve customers’ problems. The latter is predominantly a result of the customer interaction process. Toivonen & Tuominen (2006) referred to service innovation as a new service or as an improvement of an existing service which is put into practice and offers benefits to the firm that has developed the service; the benefit typically stems from the added value that the service improvement provides to the consumer. Whereas, Flikkema, Jansen & Sluis (2007) defined service innovation as a multidisciplinary process of designing, realizing and marketing mixes of current and/or new services and products with the end of goal of creating valuable customer experiences.

Regarding market innovation, Na, Kang & Jeong (2019) referred to market innovation, as an innovation that strengthens marketing and increases the competitiveness and performance of a firm by making enhancements and developing new solutions for the marketing mix related to products, price, distribution, and promotion. Additionally, market innovation includes the following capabilities: a differentiated brand, product development, and superior product quality, marketing communication differentiation and sales ability. It is also the ability of a firm to effectively allocate, manage, and implement the firm’s resources appropriately dependent on market conditions. Market innovation is important as it ensures customers benefit from the superior value and it can contribute to sales growth by increasing demand. Improvements in customer value creation through market innovation contributes to the competitive advantage of the firm by making superior implementation of marketing a reality.

Grosz (2014) referred to marketing innovation as the application of new marketing techniques, that involve significant changes or modifications in product design, product placement, product pricing. The distinct feature of market innovation in comparison to changes within the firm’s marketing tools is the execution of a marketing technique not previously used by the firm. Market innovation must be part of a new marketing strategy that signifies a significant departure from the firm’s current marketing techniques. The new marketing techniques can be developed by the innovating firm or adopted from other
firms. Whereas, Christiansen (2014) defined market innovation as new marketing techniques that can be employed for both current and new products. Improvements made to the mix of target markets and of the way in which these are served, with a focus on new markets and new distribution process in both foreign and local markets.

Safaricom PLC, previously Safaricom Limited, is a telecommunications company based in Nairobi, Kenya. Safaricom PLC began as a division of Kenya Posts & Telecommunications Corporation, the previous monopoly operator. Safaricom officially launched its operations in 1993, and was incorporated in 1997, and was awarded a license in 1999. It became a public company with limited liability on 16 May 2002. The company offers integrated telecommunication services, including mobile and fixed voice, short messaging service (SMS), data, Internet and M-PESA, a mobile money transfer service. It also provides financial services and business solutions to organizations and the public sector. Safaricom PLC voice services comprise of roaming services, sales of mobile phones, mobile broadband modems and routers. Its converged business solutions include fixed voice service for corporate and Small and Medium-sized Enterprises (SMEs), mobile solutions and fixed data for homes and businesses using fixed lease lines, and Internet solutions for enterprises and hosted services, such as cloud hosting, domains and security services (Reuters, 2019).

1.2 Statement of the Problem

Innovation and especially technological innovation (product innovation, service innovation and market innovation) in relation to competitive advantage have dominated discussions in the business and academic world, with questions as to whether technological innovation (product, service and market innovation) have impacted how firms stand out amongst their rivals. Past studies in selected industries across the globe, state that in today’s dynamic environment with its rapid and erratic changes, tangible assets are more readily accessible, can be easily imitated, and are interchangeable, hence it is essential for firms to improve their competitiveness. As such, competitive pressures, the need to adapt continually and innovate has become important for firms to have superior performance, this is argued by Nuryakin (2018) citing Karagouni & Papadopoulos (2007).

Studies on product innovation and competitive advantage have investigated product innovation as a competitive advantage. These studies focused on product innovation in a
wide array of industries such as Small and Medium Enterprises (SME’s), export and alcoholic beverages, with some studies focusing on the telecommunication industry in Kenya. Machado & Azambuja (2018) undertook a study on product innovation as a competitive advantage for emerging multinationals: the case of the Judge revolver in the USA. Agaba, Emenike & Olutayo (2018) undertook a study on and on product innovation in relation to pricing and competitive advantage in the alcoholic beverage industry in Uganda. Muita (2013) undertook a study on innovative strategies and competitive advantage in the telecommunication industry in Kenya, however the focus on the study was on customer loyalty, brand recognition and growth of revenue.

Mathenege (2013) similarly undertook a study on innovation and competitive advantage of Telecommunication companies in Kenya, however the focus of the study was on financial innovation. Letangule & Letting (2012) & Soi (2016) likewise undertook a study on the effects of innovation strategies on performance of firms in the Telecommunication Sector in Kenya, however focus of the studies was on how innovative strategies affect the performance of firms. It is therefore evident that there are gaps in the above-mentioned studies as none of the studies investigates the effects of product innovation in relation to competitive advantage in the telecommunication industry in Kenya. The studies done in Kenya focused on product innovation and its effects on a firm’s performance, or only focused on a particular product offering of the telecommunication companies being studied. This study aims at filling the gap as it relates to product innovation and its effects on competitive advantage in the telecommunication sector in Kenya.

Service innovation and its effects competitive advantage in the telecommunications sector is an area that has not been adequately studied by scholars and researchers in the recent past. This study will evaluate service innovation as a variable on its own, and provide additional knowledge on the effects of service innovation on gaining competitive advantage. Most preceding studies on innovation defined service innovation, but in varied ways, for the reason that, service innovation studies were in early stages of development. However, over the last three decades innovation in services have changed, and the meaning and measure of service innovations have become more complex (Vence & Trigo, 2009).
According to Durst, Mention & Poutanen (2015) there are few empirical studies that have been carried out to examine service innovation and its impact on competitive advantage. The following are the studies undertaken on service innovation and competitive advantage; Noorani (2014) undertook a study on service innovation and competitive advantage, however the focus on the study was on online B2B industry. A study was also undertaken by Lin (2013) on service innovation and competitive advantage with a perspective of system dynamics for China Mobile. Studies were also carried out by Osei & Owusu (2015) the study was on service innovation in the telecommunication sector in Ghana however the focus was on a university and industry approach towards enhancing innovation capabilities. In Kenya the studies done by Mathenge (2013), Muita (2013) & Soi (2016) did not study the effects of service innovation on competitive advantage. Therefore from the above studies it is evident that there is a gap in relation to the effects of service innovation on competitive advantage with this study will aim to fill.

With regards to market innovation in relation to competitive advantage, the focus in previous studies has been on industries outside the telecommunication sector such as the export sector, the FMCG sector, the manufacturing sector. These studies include breakthrough innovation in international business: The impact of tech-innovation and market innovation on performance in the export industry (Silva, Styles & Lages, 2017). Further studies in Kenya by Letangule & Letting (2012) & Soi (2016) studied the effects of innovation strategies on organizational performance. Therefore it is evident that there is a gap in understanding how market innovation affects competitive advantage particularly in the telecommunication sector, and particularly in Kenya. From the above studies, it is evident that scholars and researchers may have primarily focused mainly on one dimension of innovation which is product innovation and overlooked service innovation and market innovation in relation to competitive advantage, and how they all tie back to technological innovation. This study seeks to fill that gap.

1.3 General Objectives

The main objective of this study was to determine the effects of technological innovation on competitive advantage in the telecommunications industry in Kenya, with a focus on Safaricom PLC.
1.4 Specific Objective

1.4.1 To determine the effects of product innovation on Safaricom PLC’s competitive advantage.

1.4.2 To assess the effects of service innovation on Safaricom PLC’s competitive advantage.

1.4.3 To identify the effects of market innovation on Safaricom PLC’s competitive advantage.

1.5 Rationale of the Study

The research topic focused on a topic that is of great interest to the Technology and Innovation department at Safaricom PLC, top management at Safaricom PLC, other telecommunications companies, customers, academicians and researchers to gain an understanding how technological innovation together with product innovation, service innovation and market innovation impact competitive advantage.

1.5.1 Technology and Innovation Department at Safaricom PLC

This study will be of significance Safaricom PLC’s Technological and Innovation department by way of aiding the department to where necessary remove, inefficient IT processes, redundant platforms and automate core processes and where necessary consolidate competencies that may converge, thereby resolving customer issues faster and reducing service errors, and understand the how consumers perceive the technological innovations that have been developed by Safaricom PLC.

1.5.2 Top Management of Safaricom PLC

This study will be of relevance to Safaricom PLC top management, as it will aid management in understanding how technological innovation may be a key growth indicator to Safaricom PLC maintaining its competitive advantage in the volatile telecommunications industry in Kenya. With the ever-changing market forces and challenges, this study will help Safaricom’s top management gain vast knowledge on how to adapt to the ever-changing technological landscape while maintaining a competitive position as a key industry player, as well as gain insights from customers on whether its technological innovations have had an impact on its customers.
1.5.3 Telecommunications Companies
The study will be of significance to other telecommunications companies both locally and internationally, as the companies will gain a further understanding of how technological innovation has impacted Safaricom PLC’s competitive advantage, and how they can use technological innovation to improve on their offerings to consumers, consequently gaining competitive advantage.

1.5.4 Customers
This study will of relevance to customers, as the perception of technological innovation and the reputation of the company carrying out the innovation plays an important role in their purchasing decisions.

1.5.5 Researchers and Academicians
The study will be of significance to academicians, as it will provide additional knowledge to the academicians in developing appropriate content for syllabus for the strategic management students and will provide literature for further research. For researchers, the study enables build their understanding of the effects of technological innovation on gaining competitive advantage with a focus on Safaricom customers, and where necessary, bridge any gaps within the study.

1.5.5 Policy Makers and Government
Policy makers can use the findings of the study, to develop policies that enhance technological innovative strategies and increase the capacity for organizations to innovate, which will, in turn, benefit the economy. An additional beneficiary of study will be government agencies with a innovation mandate, that can use the data to understand the extent of technological innovation within the telecommunications industry in Kenya.

1.6 Scope of the Study
The study was limited to technological innovations periodically adopted by Safaricom PLC, since its inception to present, delving into how the company has used technological innovation to gain competitive advantage. The scope of the study defined the terms of reference within which the problem statement was analyzed, and recommendations made. It further discussed what, where and how the relevant data was collected, the variables studied, and the length of the study. This study was limited to Nairobi County, Kenya and respondents were customers of Safaricom PLC. The study was undertaken over a four-month period. Information from respondents was collected using primary data. The
independent variable identified for this study was technological innovation (product innovation, service innovation and market innovation) while competitive advantage was identified as the dependent variable.

1.7 Definition of Terms

1.7.1 Competitive Strategy
Competitive strategy denotes the manner in which a firm competes, within a specific industry, in order to gain a competitive advantage over its rivals (Porter, 1985).

1.7.2 Competitive Advantage
Competitive advantage is the extent to which an organization is able to create a position that can sustain the market as long as competitors remain. (Russell & Millar, 2014).

1.7.3 Technological Innovation
Technological Innovation is referred to as the introduction of a new device, method, or material for application to commercial or practical objectives (Schramm 2017).

1.7.4 Product Innovation
Product innovation is the production of a good or service which is new or importantly enhanced when compared with the existing specifications or foreseen uses. Product innovation includes important enhancements in technical specifications, components and materials and the unified software (Akis, 2015).

1.7.5 Service Innovation
Service innovation refers to service offerings not previously available to the firm’s customers, including an addition to the current service mix or a change in existing services (Menor & Roth 2007).

1.7.6 Market Innovation
Market innovation denotes improvements made to the mix of target markets and of the way in which these are served, with a focus on new markets and new distribution process in both foreign and local market (Christiansen, 2014).

1.8 Chapter Summary
This chapter introduced technological innovation, product innovation, service innovation, and market innovation in relation to competitive advantage, and provided a background to the study. The chapter similarly detailed the problem statement, the scope of the study, the rationale of the study and definition of terms to provide clarity of the subject matter.
Chapter two and three detailed the literature review and research methodology respectively, while chapter four analyzed the findings, and the final chapter, chapter five covered the discussion, conclusions, and recommendations.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction
Chapter two presents and reviews literature based on the specific objectives of the study, it first and foremost delves into the effects of product innovation on competitive advantage, secondly, the effects of service innovation on competitive advantage and lastly, the effects of market innovation on competitive advantage in telecommunications industry in Kenya with a focus on Safaricom PLC. Both theoretical and empirical literature are covered within the scope of this study.

2.2 Effects of Product Innovation on Competitive Advantage

2.2.1 Competitive Advantage

There are numerous terminologies used to define competitive advantage Keegan & Abdulhamid (2007), defined competitive advantage as the rate of attractiveness that an organization offers in comparison to its rivals in the market from the viewpoint of the customer. From the literature on competition strategy, competitive advantage is viewed within the context of value creation and as that which generates income while reducing costs (Rumelt 2003). Scholars such as Saaty & Vargas (2010) opined that competitive advantage is derived from dimensions of each organization that enable the organization to differentiate itself in terms of its offering when compared with its rivals. On the other hand, De Toni & Tonchia (2003) viewed competitive advantage as the values that the firm offers to customers so that the values offered by the organization is greater than the price customers have to pay for a product or service.

Hosseini, Soltani & Mehdizadeh (2018) concluded that from the above definitions competitive advantage is directly related to the expected customer values, values offered by the firm versus those offered by competitors which determines the scope and conditions necessary for competitive advantage. In different industries, some firms, regardless of profit, have superior performance as a result of possessing unique factors such as skill and capital, that aid an organization in gaining a competitive advantage over rival firms. Grounded in the theory of competitive advantage, competitive advantage consists of two key elements, specifically low-cost advantage and differentiation advantage as the crucial components in achieving superior performance (Porter, 1985).
The theory of competitive advantage explicates the manner in which an organization can use its internal capabilities to attain organization strategic advantage (Day, 2014). Organizations create competitive advantage by developing new and improved ways to compete in an industry and to maintain their position in the market, this is perceived as an act of innovation. Innovation is about developing concepts based on an understanding of market needs. The four main factors that cause innovations that shift competitive advantage; are new and advanced technologies, shifting buyer behaviour and buyer needs, and the emergence of a new industry segment, and changes government regulations (Whalley, 2010).

According to the Communications Authority of Kenya (2018), the mobile telecommunication industry in Kenya has been intensely competitive. Intense price wars are taking place between Safaricom, Airtel and Telkom Kenya, where Telekom Kenya and Airtel have carrying out aggressive marketing, introducing new products and offers to attract more customers trying to increase their market share. Safaricom’s response has been to constantly introduce new products and services, by cutting down further the prices of its products and services. This has led to Kenya having the lowest call rates in Africa. According to Oteri, Kibet & Ndung’u (2015), competition in the telecommunication industry in Kenya, has greatly increased in data and voice service delivery from Kenya’s telecommunication players. Mpuga (2017) states that Safaricom PLC uses a three-pronged approach (1) the customer is king – puts the customer first; (2) develops relevant products, services and operational excellence thereby driving its competitive advantage.

2.2.2 Product Innovation

According to Reguia (2014), product innovation is critical to any organization, the reason being that the product, whether it is a good or service is the basis for the creation of companies, and products have a direct link with customers who are considered a critical objective for organizations. The term product innovation has evolved over time, with different terms being used to classify and define product innovation. Product innovation can be viewed from two perspectives, the internal perspective which is dependent on resources, knowledge, capabilities and technologies used within the organization, whereas the external perspective is dependent on customer needs and expectations.
Product innovation is categorized into two distinct activities; the first being old product development, which entails improvements and updates on existing products, and new product development – development on new products suited to customer and market needs., as well as use of new techniques in the production process. Organizations are working within a dynamic environment which changes rapidly, the changes that occur within the environment may include technological economic, political, organizational social, market and technological changes. In this new and turbulent environment organizations have seen the need to adapt to the changes in the environment to ensure survival and continuance. Nonetheless, organizations can consider these changes in the environment as opportunities or threats that will drive the organizations to develop new methods suited to with these environmental changes (Reguia, 2014).

Product innovation has played a significant role in helping organizations, maintain and grow their competitive position, the power of product innovation is indisputable. It is critical for products to be updated, improved or renewed in order to retain a strong market presence. Improved and radically improved products play a critical role in long term business growth (Hart, 1996). It is important to outline what product features are to be improved or radically changed, this is the reason analysts have distinguished between “core” product features, which aids in appraising, buying and using the core product. The amount of support provided will depend on customer needs (Johne, 1999). As opined by Calantone Vickery & Droge (1995) organizations that offer products that are adapted to the needs of the target customer, market them more efficiently than their rivals, are better able to create competitive advantage, which thereafter, leads to sustainable competitive advantage.

Innovative products become are key in industries where; through the development of innovative products, customers are able to gain a bundle of benefits in terms of either feature, design or function (Khin, Ahmad & Ramayah, 2010). Organizations that are competitive no longer offer products that are similar to those of their competitors, and are no longer competing based on traditional reasons such as price and quality. With regards to technical organizations, the inclination is to differentiate product offering in relation to innovation in order to gain a competitive advantage over competitors (Nuryakin, 2018). Product innovation is a key driver of economic growth and productivity, in this relationship the innovation output of one organization becomes part of the innovation input to another organization. Successful innovation gives rise to new products and
services, which in turn gives rise to new markets, generates growth for businesses, and creates customer value. Innovation improves existing products and processes, thereby yielding higher productivity, lower costs, increased profits and employment (Trott, 2017).

2.2.3 Factors Influencing Product Innovation
Factors that may influence product innovation within organizations are for example, social and organizational factors that influence organizations to become innovative with regards to product innovation to meet particular market needs. However forces within the market have a strong effect on the current product positioning due to increased competition, situations within the market may similarly influence the existing products, and therefore directly impact the current product life cycle which has been shortened due to technological advances. Sufficient support from governments and a conducive political environment encourage organizations to innovate, as research and development hubs are set up where organizations are provided with financial and human resources. Furthermore, technological factors offer new techniques in the area of product innovation while factoring in consumer needs, thereby increasing profits and gaining market share (Reguia, 2014).

2.2.4 Product Innovation Perspectives
According to Atuahene-Gima (1996), product innovation has three distinct perspectives, firstly, the consumers perspective where the product is new to consumers, and secondly, the product is new to the organization and lastly, the product modification where product variations are incorporated into the existing products of the firm. Adner & Levinthal, (2001) stated that the key objective of product innovation is to attract new customers while Duranton & Puga (2001) however, noted that the majority of organizations introduce new products or modify the existing products based on customer needs.

2.2.5 Importance of Product Innovation
Lee & Zhou (2012) stated that product innovation is extremely crucial for an organization’s success and existence, and further defined product innovation as the introduction of new technologies or designs into a particular market place. From research carried out by Rubera & Kirca (2012) the findings revealed that the introduction of product innovation, whether incremental or radical had a positive influence on the organizations value, thereby increasing its market share. Hoang, Igel, & Laosirihongthong (2010) postulates that firms generally gain profits, increased market share and
competitive advantage mainly from innovation, furthermore Hoang et al., 2010 further stated that product innovation benefits both to the firm and to industry as a whole and they include, with benefits including; increased sales which lead to increased profitability, production costs reductions, time saved and improved product quality.

2.2.6 Product Innovation Effects on Competitive Advantage

In recent studies carried out by Beaudreau (2016) it was identified that there was strong positive relationship between product innovation and competitive advantage, therefore the study was able to conclude a firm that develops a new product and positions it in the market has a greater probability of gaining competitive advantage compared with firms that do not develop innovative products. Chen, Wang, Nevo, Benitez, & Kou (2015) noted that it is necessary for organizations to continually develop innovative products thereby increasing their competitiveness in the market. Organization need to seek to develop products that enhance their value and competitiveness in the market place.

Studies done by Eshlaghy & Maatofi (2011) demonstrated the importance of innovation in positively contributing to an organization’s competitive advantage, and that the organization's role in dealing with a turbulent environment requires innovation which leads to higher competitive advantage and performance. Granting that a number of previous studies have investigated the effect of innovation on an organization’s competitive advantage, it seems that innovation plays a critical role in supporting an organizations competitive advantage.

A study by Holtzman (2008) found that is was critical for organizations to look at product innovation critically, as it is a crucial element within the organization and determines future success. The success of mature organizations due to the fact that innovation is part and parcel of strategies, process and products. Product innovation aids organizations in achieving positive outcomes within the market and in relation to their competition. Product innovation is considered one of the most crucial organizational strategies and is therefore considered a source of the competitive advantage. The survival of an organization is closely related to its ability to develop competitive advantages in terms of its products, thereby increasing customer value and increasing its market share through product innovation (Trott, 2017).
In a study carried out by Andrew, Manget, Michael, & Zablit it was revealed that due to the relatively short product life cycles, product innovation is regarded as the lifeblood of organizations competing in very dynamic and turbulent environments. Their findings also concluded that product innovation was rated among the top three strategic focuses for 71% of organizations and that 70% of organizations considered newly developed products as of great significance to the organization’s future. Further studies by Calantone et al., (1995) proved that product innovation has a positive influence on the performance of new products such as sales relative to market share and profitability of the new products. Markham & Lee (2013) stated that the importance of effective new product development is indisputable, from their research it was demonstrated that for a large number of organizations an increased percentage of profits and income typically comes from newer products and the higher-performing organizations are very skilled at product development.

Several studies have been conducted in Kenya to show the relationship between product innovation and competitive advantage. From the findings of the study carried out by Onguko & Ragui (2012) on the role of strategic positioning on products performance in the telecommunications industry in Kenya, the findings were able to conclude that Safaricom has invested heavily in innovation as compared with players in the same industry. Karanja (2014) carried out a study on innovation strategies and their effect on the competitive advantage at the United Bank of Africa. The findings suggested that there was an adoption of product innovation strategies that enabled UBA to offer a differentiated product, thereby gaining competitive advantage.

Letangule & Letting (2012) researched on innovativeness in the telecommunication sector and found that product innovation had a positive effect on profitability and competitive advantage. Onong'no (2014) studied on the role of innovation in building competitive advantage in the Horticultural sector in Kenya, from the findings it was demonstrated that that is a significantly positive relationship between product innovation and competitive advantage. Kariuki (2017) additionally undertook a study to investigate the effects of innovation strategy in enhancing competitive advantage among commercial banks in Kenya, the findings demonstrated that there was a significant relationship between product innovation and competitive advantage. Product innovation directly and positively impacted productivity and competitiveness in the market.
Al-Debei & Avison (2011) alluded that this is a new era, the telecommunication industry across the globe has to deal with increased levels of turbulence uncertainty and unpredictability in their current business environments and competitiveness of market due to the globalization of the sector which has led to a shift from production-oriented economy to knowledge-oriented economy and also the growth of information communications technology. As opined by Wheelwright & Clark (1992) the present global and rapidly changing competitive environment has led to product innovation becoming increasingly relevant, due to three major trends which encompass the following; segmented and demanding markets increased global competition and diverse and rapidly changing technologies.

The ever-increasing competitive and everchanging environment of competition will continued to demand aggressive and innovative attitudes from organizations (Kusumawati, 2010). Therefore, in order for a firm to succeed in sustaining the continuity of its product sales, is determined by its capacity to innovate, in order to stay ahead of the competition (Haji & Arifin, 2017). The capacity to innovate should be aligned with the customers' continuous desire, which in turn affects the customer growth (Haji & Arifin, 2017) therefore innovation needs to be well planned.

2.3 The Effects Service Innovation on Competitive Advantage

2.3.1 Service Innovation

Service innovation is frequently differentiated based on product innovation (changes in what is offered), or in terms of process innovation (the production and delivery of the offerings). Furthermore, service innovation types vary based on the degree of change, ranging from major service innovations for new markets to comparatively minor innovations such as improvements to current services or service line extensions (Francis & Bessant, 2005; Lovelock, 1984). Another characteristic of service innovation is that it has the capability to develop new business models that can transform an industry or sector, and can also form a foundation for classifying different types of innovation in services. A case in point how internet search engine companies like Google transformed the way we search for information.

Bouwman, Vos & Haaker (2010) postulate that developed nations are highly reliant on service innovation for their economic growth, as well as for employment purposes. The development of new innovative services (mobile end-user services and financial services)
are seen as key factors for economic growth. Service innovation follows four current patterns that shape the developed world economies; the increasing importance of services, the necessity for innovation, the revolution in consumer and business markets, and the progression of information and communication technology (ICT). Technology is key in aiding service innovations.

Miles (2005) however, contended that, among all technologies, information technology, is said to be the most important enabler of service innovation. Barras (1986) observed that the information technology revolution is central to the industrialization of services with the use of information technology aiding improvements in the efficiency and quality of services. From history, however, the service industry has been sluggish in adopting information technology and other types of technology as compared to the manufacturing industry. The reason for this may be due to the greater diversity and dynamism in services, therefore meaning that service innovation cannot use the same standardized research & development model as is used in the manufacturing sector (Trott, 2012; Ozyilmaz & Berg, 2009).

Successfully engaging customers in the service innovation process is a difficult task (Trott, 2001; Hamel & Prahalad, 1994). The insights gained through customer contribution or participation are from time to time not beneficial to the organization as customers are unable to articulate their needs or desires in a way that can be applied (Von Hippel, 1986). Recently, organizations have discovered a new way to overcome this limitation, and are engaging customers in the innovation process through user toolkits, that offer customers the autonomy to create and design their own personalized product or service (Von Hippel 2001; Franke & Piller, 2004). This is most valuable in markets where customers are increasingly seeking customized offerings (Thomke & Von Hippel, 2002; Franke & Piller, 2004).

Consumers likewise play key roles as users of new service offerings, organizations such as Microsoft have leveraged online user groups to test samples of new software to seek input in order to refine the particular software (Trott, 2012). Bessant & Tidd (2007) specified that it is more beneficial to involve customers, and particularly lead users or customers, in the innovation process of highly innovative services rather than low innovative services. It is also key to engage lead users or customers through all stages of service innovation rather than at the end of the process (Athanassopoulou & Johne 2004).
2.3.2 The Importance of Service Innovation

Bouwman, et al., (2010) further alluded that, as regards the economies of nations and individual firms, service innovation is a pertinent issue. Previously, in developed nations, national innovation strategies have concentrated on supporting technological innovation in manufacturing organizations, and largely ignoring innovation that had previously occurred in the service sector. Governments across the world, organizations in the service industry as well as manufacturing firms, are increasingly recognizing that services, the innovation of services, the continual development of the services industry and employment generated in the services industry are important economic drivers.

Manufacturing firms have come to the realization that the amalgamation of technological innovation in services can lead to competitive advantage. Case in point, services enabling consumers to update the software on home appliances. Technology has revolutionized many previous inseparable services into services that can be consumed whenever or wherever, (Berry, Shankar, Parish, Cadwallader, & Dotzel, 2006). Additionally, information and communication technology improve the service delivery process, based on back-office applications, for example, use of customer relations management processes, multi-channel methods, re-evaluating the client interface by introducing online communication and distribution approaches, and the use of service marketing. Therefore, data is available to support innovation in particular service functions along the service process (Bouwman et al.,2010).

According to Berry et al., (2006) service innovation should take a holistic approach, they discuss nine drivers for service innovation which are: scalability, business model, comprehensive customer care management, investment in employee performance, continuous operational innovation, brand differentiation, an innovation champion, a superior customer benefit, affordability and continuous strategic innovation. Similarly, Hertog (2000) discussed four dimensions that are particularly relevant to service innovation which are service concept which is a new service in the market, client interface which refers to new ways as to which clients are involved in the service production, service delivery system which encompassed new ways the actual services are delivered to the customers, and technological options, which has to make sure that the services can be provided efficiently. It is clear from both discussions on innovation in general and from specific discussions on service innovation that it is important to look at innovation from various perspectives such as customer, service provider and technology,
and a number of disciplines that have contributed to service innovation such as marketing, management and finance, that have contributed to the understanding and support of innovation.

2.3.3 New Service Development

New service development can be defined as an offering not previously available to customers, that results from the addition of offerings, radical changes in the service delivery process, or incremental improvements to existing service packages or delivery processes that customers perceive as being new (Johnson, Menor, Roth & Chase, 2000). Although new service development attracts more and more attention from researchers and practitioners, methodologies and tools that are specific to service development are limited and depend on product design and engineering. Success factors for new service development are related to the nature of the service, the product market characteristics, the project synergy, the development process and innovation culture (Johnson et al., 2000).

2.3.4 Service Innovation Effects on Competitive Advantage

Durst, Mention & Poutanen (2015) postulate that, in spite of the increasing body of research and knowledge, focused on service innovation, empirical research focusing on measuring its effects, primarily at an organizational level, remains scarce. Service innovation can offer an effective means of creating sustained competitive advantage for a firm. According to Noorani (2014) in order to be more competitive, organizations need to continually seek out new approaches, tools and services that will aid them, in gaining competitive advantage. To achieve a competitive advantage, most organizations prefer to introduce more innovative services. Today information technology is seen as the cornerstone for the improvement of services and innovation and enables firms to offer better services to its consumers thus achieving competitive advantage. Information technology and related information technology-enabled services play a key role in aiding firms to identify and put in place rapid changes in the organizational structure from production to customer support (Agarwal & Ramamurthy, 2002), supported by improvements in competitive capabilities (Sambamurthy Bharadwaj & Grover 2003).
Service innovation is thought to deliver competitive advantage to governments as well as to individual firms (Bouwman et al., 2010). According to studies by Lin (2013), findings showed that there is a positive effect between service innovation and marketing performance which led to an increase in the profitability of the firm. Previous studies have stated that innovative services allow firms to access market trends Carbonell, Rodriguez & Pujari (2009) and enhance their learning capabilities, Hertog, Van Der & De John (2010) thus enabling marketing performance (Menor& Roth, 2008). As service-oriented organizations are geared to the provision of innovative services, organizations in competitive markets have more prospects of creating value for consumers (Berry, et al., 2006; Maglio & Spohrer (2008) and subsequently increasing marketing performance and competitive advantage (Melton & Hartline, 2010). In a study by Nataya (2018) it was noted that service innovation ought to be seen as a key competitive strategy for the reason that, if the product offered is good, but the service provided to the customer is lacking and not required, this means that the consumer will most likely move to a competitor who offers better service.

2.3.4.1 The Value of Mobile Services

In discussions regarding mobile services, customer value is defined in several ways. Mobile services can provide many functionalities that transcend time and space, enabling people to study, play and shop literally anywhere and anytime they want. Mobile services can break down the barriers to information access, enhance communication and collaboration and allow users to perform various tasks without regards for time and location (Wang, et al., 2008). Recent research on the value of mobile services has shown that convenience-focused ideas are well regarded that is services and applications that help the user in solving daily practical problems. During leisure time and more hedonistic experiences become important, in other words, playful and fun aspects are driving value (Bouwman et al., 2010). Social aspects of technology are important as well that is, human interaction and communication, which provides a sense of belonging which is crucially important (Klemmettinen, 2007).

Personalization and context awareness are important technological enablers, that have the potential to enhance consumer value of mobile services. Personalization uses customer preferences for example information stored in personal profiles to adapt services better to suite users. Context-aware services use the user context or other relevant entities to adopt the behaviour of services automatically (Bouwman et al, 2010). Researchers have
deliberated on competitive advantage under different backgrounds, Porter (1985) stated that a firm can gain competitive advantage, based on cost and product differentiation led by five force model and supported by value chain activities of the firm, which comprises managerial activities like personnel, procurement, information technology that support marketing, inbound and outbound logistics. This type of competitive advantage is associated with the external environment and positions the firm accordingly to achieve competitive advantage. Against this backdrop, service innovation develops new products and services that satisfy the fast-changing consumer needs. To take advantage of the new ideas and transform them into innovative products and services, firms need to ensure the maximum use of its physical and human resources alongside technological development to gain increased profitability and growth. (Roberts & Amit, 2003).

Barney (1991) emphasized on an internal aspect which looks into firms’ resources and their role in competitive advantage and its sustainability, Barney (1991) further suggests that organizational resources are key elements in providing a sustainable competitive advantage. Berry et al., (2006) in their study, looked at the relationship between the resource-based view of customer value and its relationship with competitive advantage. The study offered a discourse on what the best organizational resources as recommended by customers, that would give the firm a competitive edge. The recommendations were intangible resources such as trust, reputation, intellectual property and network and capabilities such as knowledge, culture, and skilled employees. The aforementioned resources were seen as very difficult to imitate and hence provide sustainable competitive advantage.

It was also noted that organizations tangible resources such as equipment, technology can be were easily imitated and therefore would not aid the firm in gaining sustainable competitive advantage. The proper use of tangibles is what was seen to give a competitive advantage to the firm (Wilford, 2000). A study carried out by Ogunnaike, Ibidunni & Adetowubo (2014) on evaluating the association between service innovation and competitive advantage in the telecommunication industry showed a significant relationship between service innovation and competitive advantage in the telecommunication industry in Nigeria. A further study carried out by Odhiambo (2015) on innovation and service quality in the telecommunication industry in Kenya, revealed that there is no relationship between service quality and innovation, which was against expectation.
2.4. The Effects of Market Innovation on Competitive Advantage

2.4.1 Market Innovation

There are several terminologies used to describe and define market innovation, market innovation. Tavassoli & Karlsson (2015) referred to market innovation as the implementation of a new marketing method involving key modifications in terms of the design of the product or product packaging, product placement or pricing strategy. Its aim is to better meet customers needs, to open up new markets, or to give the firm’s products a new position in the market with the intention to increase sales incomes. Market innovation is strongly related to pricing strategies, product offers, design properties, product placements and/or promotion activities.

Reguia (2014) referred to market innovation as new markets have been created by using the same existing knowledge with some modifications and improvements. The main goal here is to discover new markets. According to Johne (1999), market innovation comprised of the marketing mix and market offerings that satisfy customers’ needs. Rodriguez, Cano, Carrillat & Jaramillo (2004) asserted that market innovation aims at fulfilling market needs while responding to market opportunities. Hence any market innovation needs to focus on meeting customer needs (Rosli & Sidek, 2013). Market innovation pays attention to better understanding and addressing the needs of customers, entry into new markets and placement of a firm’s product in the market, with the goal of increasing sales (Oslo Manual, 2005). According to Johne & Davies (2000), market innovation increase sales by increasing product consumption leading to increase profits to the firm.

Karthika & Chandrakhanthan (2007) asserted that market innovations are designed to better address customer needs, open up new markets, or new position a firm’s products on the market, with the goal of increasing sales. The key attribute of market innovation, when compared with other changes in the organization’s marketing elements, is the execution of a marketing approach that has not been used by the organization in the past. It is an integral part of the marketing strategy that signifies a significant departure from the firm’s current marketing approaches. The new marketing approach can either be developed by the innovating firm or adopted from other firms or organizations. New marketing approaches can be implemented for both new and existing products.
According to the Grosz (2014), market innovation includes significant improvements in product design that are part of a new marketing concept. Product design improvements denote improvements in product form and appearance, which do not change the product’s functional or user physiognomies. Product design improvements comprise modifications in the packaging of products such as beverages and where packaging is a key element of the product’s appearance this can be done in order to target a new customer segment. New marketing techniques in product placement principally involve the introduction of new sales channels. Sales channels denote the techniques used to sell goods and services to customers.

In terms of new marketing methods in product promotion, this comprises the use of new ideas for promoting an organizations products and services. Lastly, innovations in terms of pricing entail the use of new pricing tactics to market the firm’s products or services. For organizations to be able to gain competitive advantage, they are required to understand market trends, consumer needs and its dynamic business environment. A firm’s performance is fundamental to staying in business in this global era (Hartini, 2012) and innovation is one of the key determinants of a firm’s performance. Technological advancements and increased competition require firms to continually innovate (Hartini, 2012) which, in turn, affects the firm’s competitive advantage and performance (Kusumawati, 2010).

2.4.2 Purposes of Market Innovation

2.4.2.1 Potential Market Identification

Identification of potential markets in market innovation is achieved through segmentation of markets. Segmentation of markets is the division of the potential market into smaller more manageable segments, this is important for an organization if its main objective is profitability. Inadequate market segmentation will lead to a less than optimum mix of target markets, this will, therefore, have an impact on, due to inadequately segmenting the market (Johne, 1999).

2.4.2.2 Market Servicing

Market innovation pertains to serving the selected markets better, which depend on accurate interpretations of consumer buying preferences, but in greater detail. As with benefit segmentation, firms need to understand the buying preferences of their consumers as consumers or buyers are likely to accept or purchase offers the most appeal to them.
However, Mathur & Kenyon (1997) provide a solid argument for amplifying buyers’ purchasing behaviours and argue that the same core product features are purchased in diverse manners by customers with diverse user needs. For example, there are customers who choose to purchase in a “commodity-buy” mode which is when buyers or customers are well able to recognize the core product features. In this buying mode, consumers make their purchasing decision based on price alone, and not on differentiated product features.

However, other consumers prefer to buy in a “product-buy” mode which is where knowledgeable consumers lookout for superior core product features and a will to pay a premium price for the core features. Consumers or buyers who are less knowledgeable prefer to purchase in a “system buy” mode which means that they are willing to pay a premium price for core product features but will also ask for help in the form of advice. Lastly, there are consumers who prefer to purchase in consulting buy mode, where they are only seeking advice on how to purchase the core product and are willing to pay for it (Johne, 1999).

According to Clemmer (1998), market innovation and creativity are the crucial to the success of firms in the business environment, mainly in terms of strategic planning for future growth and for the development of new products and services. Haddad & Algadeer (2004) stated that marketing innovation demonstrates the firm ability to continually improve products/services, which in turn lead new benefits to its customers thus satisfying their needs in a unique way. This, in turn, may result in creating a competitive advantage for the firm through recognizing needs and converting them into technical specifications and differentiating the firm from its competitors by making the firm stand out. Clemmer (1998) also denoted that marketing innovation process is a process of continuous refinement of the learning process of the firm and undertaking new and current marketing activities and practices which are superior compared to the orthodox activities and practices.

2.4.2.3 Market Championing

Identifying potential markets and interpreting consumer buying behaviour to understand how selected markets can be served better is a specialist activity, carried out by market champions, market champions fight for a position or place in new potential markets, and or on the lookout for new ways for serving current and new markets (Johne, 1996).
Effective market championing comprises recognizing positions in which the business can build and maintain a competitive advantage. Skilful market innovation aids the firm to focus on its competitive business strategy. There are three key elements in market championing which are: customer analysis, competitor analysis and supply competence analysis. In many markets’ firms become profitable based on their ability to sell the same core product, for example, airline and train seats at different prices to different consumers.

Market champions analyze the market side of the business operations to evaluate different courses of action against the market prospects open to the firm. Consideration of only the firm’s internal strengths and competencies is too limiting a perception, as there are increasing external competitive parameters are rapidly changing that firms need to take into consideration (Hamel & Prahalad, 1994; Day & Reibstein, 1997). The operational task, subsequently, becomes one of taking advantage of market opportunities and taking into account the following: buyer behaviour and preferences; the probable competitor reaction; and core internal capabilities in product and process innovation. Treacy & Wiersema (1995) carried out a three-year consulting study of over 80 firms in various industries, the findings concluded, that market champions succeed by delivering a unique value proposition, their key outcome is that firms must make a decision of the unique value proposition that will most benefit their target consumer which is of benefit to its chosen customers (Johne, 1999).

2.4.2.4 Market Vision
According to Trott (2017), market vision is a key requirement for firms to be able to predict products and services that will be successful for firms wishing to innovate, Firms should be able to assess their technological capabilities, the current and future market needs and trends, as well as, creating a product or market offering that consumers would be willing to purchase or consume. Furthermore, Trott (2017) argued that consumers respond differently to different types of innovations, due to the role played by marketing, marketing plays a vital role in the development of new products and services. For instance, in the case of disruptive innovation, a greater shift in the consumers’ patterns, actions and thinking is required, consumers would perceive a higher level of risk and uncertainty in terms of product adoption decisions relative to continuous innovations that depend on already established consumer behavioural patterns and insights.
2.4.2.5 Marketing Insights
According to Veryzer (2005) & Martin & Siminitiras (1995), as cited by Trott (2017) marketing innovation offers the necessary information needed by the firm to ensure the successful development of innovative new products and the successful acceptance and diffusion of new products. In both cases, it is usually the insight with respect to understanding potential customers that marketing supplies. Uncovering and understanding these insights is where effective marketing is extremely valuable. Studies within marketing have shown that gaining valuable insight from consumers about innovative new market offerings, especially discontinuous new products is extremely difficult, and can lead to misleading information.

2.4.3.6 Market Orientation
Numerous studies have begun examining the effects of market orientation on innovation (Ozkaya, Hult & Calantone 2015). However, most of these studies have unsuccessfully been able to differentiate between the customer and competitor orientation when investigating market orientation, and have used general measures of market innovation or have only focused on customer orientation. (Boso, Cadogan, & Story, 2013). Firms that deal in product innovation must be attentive to market orientation as knowledge of market orientation is fundamental to successful product innovation (Wiwoho, 2012). Pardi et al., 2014; Tung, 2012; Killa, 2014; Utaminingsih, (2016) opined that innovation has a significant positive effect on marketing performance, product innovation, on its own cannot produce competitive advantage.

2.4.2.7 Market Innovation and its Effects on Competitive Advantage
Senguo & Kilango (2015) conducted a study on the relationship between marketing innovation and improving customer satisfaction at Vodacom, Tanzania. The study revealed that marketing innovation was adopted by telecommunication firms to improve corporate performance and achieve competitive advantage. In Kenya, Soi (2016) investigated the effect of innovation strategies on the performance of organisations in the telecommunications sector and found that market innovations had a strong positive association with firm performance and competitive advantage. In another study conducted by Palmer, Wright, & Powers (2015) it was concluded that there is a significant relationship between market innovation and a firm’s competitive advantage. As organizations continue to innovate, only organizations that can rapidly respond to the
changes in the market remain relevant and competitive. There are several elements within a market that can be said to be impacted by innovation, these include some of the following market orientation and competition. Varis & Littunen (2010) in their study of SMEs in Finland, when investigating the effects if marketing innovation on a firm’s performance found that there was a significantly positive relationship between marketing innovation and firm performance.

However, in a study by Rosli & Sidek (2013) on the effects of innovation on the performance of Small and Medium Manufacturing Enterprises in Malaysia, from their findings, it was concluded that marketing innovation did not have significant effects on firm performance and competitive advantage. Kariuki (2017) undertook a study to investigate the effects of innovation strategy in enhancing competitive advantage among commercial banks in Kenya, findings of this study have revealed the existence of a significant relationship between market innovation in commercial banks competitive advantage. Therefore, the study concluded that all elements of market innovation that included customer satisfaction, employee performance and overall organization performance were significant. When market innovation is bold and imaginative it provides not just a means for developing new business, but a revolutionary means for safeguarding the existing business.

Tavassoli & Karlsson (2015) postulated that few studies have clearly analyzed the determining factors of the diverse innovation strategies including product, service, market and organizational innovations and various combinations of these four types of innovation. It would be of interest to distinguish between these different possible innovation strategies since the competitiveness of firms increasingly seems to depend also on market and organizational innovations, noting that different innovation strategies have different economic effects for firms in terms of costs, market shares, growth, profitability, and competitiveness. A better understanding of the determinants of different innovation strategies would help to understand better the market and economic dynamics created by the innovation behaviour of firms. The choices between different types of innovation have mainly been analyzed within the literature on product and industry life cycles.

literature on product life cycles suggests that firms may turn to market and/or organizational innovations during the maturity and obsolescence stages. Klepper (1996) questioned the approach in the previous studies claiming that product and process innovations may appear more or less simultaneously.

Falch, Henten, Tadayoni, & Windekilde (2009) postulated that it is important to note that in the telecommunication sector there is a key issue between the differentiation between product and process innovations. The differentiation cannot be clear or well defined, as central features of the products - communication services – are delivered concurrently with the process of production, this, therefore, means that product and process cannot, therefore, be clearly separated. Nevertheless, not all process innovations become visible to the consumer in the form of new products/services. It is also possible to differentiate between network and service innovations, i.e. the innovation that consumers experience in terms of services, and the innovations that consumers do not necessarily notice, such as the network. Wachjuni (2014), states that firms must have the right strategy in order to take of the environment in order to benefit from using the chosen strategy. Firms must conceptualize a competitive marketing strategy where they can gain a competitive advantage by offering superior customer value (Kotler, 2008).

2.5 Chapter Summary

This chapter presented a literature review of studies by various scholars and researchers on the three types of innovation and their effect on competitive advantage. The three key dimensions of innovation within firms were examined based on past research, these key dimensions were; product innovation, service innovation, and market innovation. The next chapter, chapter three, focused on the research methodology employed in the research study.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction
This chapter focuses on the methodology that will be used to carry out this research study and will detail the research design, population, sampling design, sampling techniques, sample size, preparation of data collection instruments and the research procedures to be used. The sampling design, sampling frame, sampling technique and sample size will be detailed. The chapter concludes with a chapter summary.

3.2 Research Design
Vogt (1993) defined research design as the science and art of planning procedures for conducting studies, so as to get the most valid findings. This research study will employ a descriptive research approach, which according to Cooper & Schindler, (2013) defined research design as the blueprint for fulfilling research objectives and answering questions or the plan and structure of the study in order to find answers to research questions. The plan is the overall framework of the research. It includes an outline of what the researcher will investigate from writing hypotheses and their operational inferences to the final data.

According to Cooper & Schindler, (2013), a descriptive study examines variables by answering the who, what, where, when and how questions. This research study will adopt a cross-sectional analysis specifically using questionnaires (Welman & Kruger, 2001) which can be defined as, a form of standardized questions in a questionnaire used to collect data. The respondents in the sample in the survey will be questioned using a standardized procedure for the answers, that will be compared and analysed statistically.

3.3 Population and Sampling Design
3.3.1 Population
Cooper & Schindler (2013) defined a population as a specific set of people, group of things, households, firms, services, elements or events which are being investigated. Greener & Martelli (2015) defined the population as, the full universe of people or things from which the sample is selected. The population of focus in this study was Safaricom PLC customers. The population of Safaricom customers in Nairobi is 4,139,820 customers.
Table 3.1: Population Distribution

<table>
<thead>
<tr>
<th>Region</th>
<th>Classification of Areas within the Regions</th>
<th>Total Customer Population (Nairobi)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nairobi West</td>
<td>CBD, Westlands, Kitisuru, Parklands, Karura, Eastleigh, Nong Road, Ngara, Githurai, Roysambu, Kikuyu, Kangemi, Uthiru, Mountain view, Kilimani, Kileleshwa, Kawangware, Riruta, Waithaka, Babadogo, Utalii, Mathare North, Lucky Summer, Korogocho, Ngara, Pangani, Kariakoo, Nairobi South</td>
<td>2,111,308</td>
<td>51%</td>
</tr>
<tr>
<td>Nairobi East</td>
<td>Burburu, City Stadium, Embakasi, Rongai, Bomas, Karen, Langata, South B, South C, Nyayo Highrise, Mukuru Kwa Njenga, Kibera, Woodley, Golf Course, Githurai, Kahawa West, Zimmerman, Roysambu, Kahawa, Kasarani</td>
<td>2,028,512</td>
<td>49%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4,139,820</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Safaricom PLC (2018)

3.3.2 Sampling Design

3.3.2.1 Sampling Frame

Creswell & Clark (2017) defined sampling as a statistical term used by researchers to determine the number of respondents or objects that will participate in a study while Mugenda & Mugenda (2013) defined sampling as that which is concerned with the selection of a subset of individuals from within a population to estimate characteristics of the whole population. Cooper & Schindler (2013) and Collis & Hussey (2009) defined a sampling frame as a list of elements from which a sample is drawn.

Zikmund, Babin, Carr & Griffin (2013) stated that the technique used for sampling, needs to ensure that selected sample for the study is representative of the population and that it is suitable for developing statistical conclusions. This study is a case study that specifically focuses on Safaricom customers in Nairobi. The sampling frame is the population of Safaricom’s customer population in Nairobi. Safaricom classifies Nairobi into geographical clusters namely Nairobi East and Nairobi West. The sample population will be divided as per the 8 areas to be covered per geographical clusters. The areas to be
covered in this study will include Nairobi West: Kilimani, Kileleshwa, Westlands (Parklands/Highridge and Mountain View) and Roysambu. Nairobi West will comprise of the following areas: Embakasi, Langata (Karen, Nairobi West, South C and Nyayo Highrise), Imara Daima and Pipeline.

Table 3.2: Sampling Frame

<table>
<thead>
<tr>
<th>No.</th>
<th>Areas to be covered</th>
<th>Region</th>
<th>Population</th>
<th>Percentage</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kilimani</td>
<td>Nairobi West</td>
<td>38,483</td>
<td>9%</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>Kileleshwa</td>
<td>Nairobi West</td>
<td>26,330</td>
<td>6%</td>
<td>24</td>
</tr>
<tr>
<td>3</td>
<td>Westlands</td>
<td>Nairobi West</td>
<td>73,452</td>
<td>18%</td>
<td>72</td>
</tr>
<tr>
<td>4</td>
<td>Roysambu</td>
<td>Nairobi West</td>
<td>38,925</td>
<td>10%</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Embakasi</td>
<td>Nairobi East</td>
<td>32,548</td>
<td>8%</td>
<td>32</td>
</tr>
<tr>
<td>6</td>
<td>Langata</td>
<td>Nairobi East</td>
<td>72,987</td>
<td>18%</td>
<td>72</td>
</tr>
<tr>
<td>7</td>
<td>Imara Daima</td>
<td>Nairobi East</td>
<td>70,455</td>
<td>17%</td>
<td>68</td>
</tr>
<tr>
<td>8</td>
<td>Pipeline</td>
<td>Nairobi East</td>
<td>56,186</td>
<td>14%</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>409,366</strong></td>
<td><strong>100%</strong></td>
<td><strong>400</strong></td>
</tr>
</tbody>
</table>

*Source: Kenya Bureau of Statistics (2013)*

3.3.2.2 Sampling Technique

Neelankavil (2015) defined the sampling technique as the process of selecting the elements of the sample that is used to give a representative view of the larger whole. The sampling technique that will be used in this study is probability sampling which as stated by Cooper & Schindler (2013) is based on the idea of random selection - a controlled procedure that ensures that each population component is given a known non zero chance of selection.

Cooper & Schindler (2013) further stated that it is only probability samples that provide estimates of precision. The probability sampling technique that was adopted for this study was cluster and stratified random sampling, the population was clustered based on geographical regions as classified by Safaricom, which is clustered into Nairobi West and Nairobi East. The population was stratified into the selected areas with the population in each area having an equal chance of being selected. This is in consonance with Tuckman
(2008) assertion and representation method for reliable information free from bias, provided that consideration is made on the distinct characteristics of the population.

Saunders, Lewis & Thornhill (2016) defined cluster sampling as dividing the target population into discrete groups before sampling is carried out, this form of sampling is based on naturally occurring groupings, for instance, geographical areas. Sarantokos (1998) defined stratified random sampling, as a two-step process in which the population is partitioned into subpopulations or strata. Stratified random sampling is the best to use to carry out this study since it has the following advantages over simple random sampling: stratified sample can provide greater precision than a simple random sample of the same size, a stratified sample provides greater precision and often requires a smaller sample, which is less costly and lastly, a stratified sample helps guard against an unrepresentative sample, for example, an all-male sample from a mixed-gender population.

3.3.2.3 Sample Size

According to Cooper & Schindler (2013), the sample size is defined as a smaller set of the larger population. Creswell & Clark (2017) defined sample size as a subcategory of the population and therefore, it should be representative of the population under study. The sample size was determined using the sample size formula proposed. The Slovin’s (1960) formula was used to calculate sample size: Formula = n = N/(N*(d)^2+1)

n = sample size
N = Population size
e = Margin of error

Therefore; n = N/(N*(d)^2+1)

= 31,800,000 / ((31,800,000*(0.05) ^2) +1)

=31,800,000/79,501 = 399.99 ~ 400

The above formula allowed the researcher to calculate an ideal sample size given a desired degree of accuracy, desired confidence level, and the degree of variability being measured in the given population.
Table 3.3: Sample Size Distribution

<table>
<thead>
<tr>
<th>No.</th>
<th>Areas to be covered</th>
<th>Population</th>
<th>Percentage</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kilimani</td>
<td>38,483</td>
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<td>5</td>
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<td>32,548</td>
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<td>72,987</td>
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<td>7</td>
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<td>17%</td>
<td>68</td>
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<tr>
<td>8</td>
<td>Pipeline</td>
<td>56,186</td>
<td>14%</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>409,366</strong></td>
<td><strong>100%</strong></td>
<td><strong>400</strong></td>
</tr>
</tbody>
</table>

3.4. Data Collection Methods

Data collection was undertaken using a semi-structured questionnaire. The questionnaire was developed based on the objectives of the study. Cohen, Manion, & Morrison (2013) asserted that questionnaires are tools that aid in collecting primary data. The questionnaire contains close-ended indicating that the questionnaire presented the respondents with a fixed set of options or choices and open-ended questions which do not limit responses but give a context for respondents’ answers (Cooper & Schindler, 2013). Closed-ended questions enabled accurate and more in-depth analysis from the respondents, whereas the open-ended questions aided in gathering the additional information with regards to the context in which the study will be undertaken thereby capturing any additional material that improves the accuracy of the study (Creswell & Clark, 2017). According to Cooper & Schindler (2013), questionnaires are the most ideal method for data collection due to their efficiency, accuracy and flexibility.

The questionnaires were designed to consist of 5 sections. Section 1 general information to obtain general information from the respondents. Section 2 interrogated the product innovations from Safaricom that customers are aware of, and the effects of product innovation on competitive advantage, section 3 interrogated the effects of service innovation on competitive advantage, and lastly, section 4 interrogated the effects of market innovation on competitive advantage.
A five-point Likert scale was used in the questionnaire ranging from strongly agree to strongly disagree for the close-ended questions. The questionnaires were administered electronically using google docs and via self-administered questionnaires. The advantage of this using this method is that it ensured confidentiality and kept track of respondents who had not returned the questionnaires given the stipulated timeline and need a reminder.

3.5. Research Procedures

A pre-test questionnaire was prepared and administered to selected respondents to ensure the objectivity and clarity of the questionnaire. The pre-test of the questionnaire aided in determining the validity and reliability of the questionnaire. The reason for pre-testing and follow through to preliminary data analysis was to ensure that the questions are effective and that questionnaire incorporated any or adjustments before the final questionnaire was issued to respondents (Bell & Waters, 2014). The pre-test questionnaire was tested on 20 randomly selected respondents, and the pre-test sample size will be guided by Mugenda & Mugenda (2003) indicating that a successful pre-test sample is between 1% to 10% of the actual sample size.

The validity of the questionnaire was established by the researcher and supervisor reviewed the elements while the reliability was tested using Cronbach’s alpha whereby a coefficient of above 0.7 implied that the questionnaire was sufficiently reliable. The results of the pilot testing were not included in the findings. The final research questionnaire was then be designed. To increase the response rate, an introductory letter was obtained by the researcher from USIU-Africa to enable identification by the Safaricom customers to assist them in providing relevant information so as to achieve the research objectives. A cover letter was also attached to the questionnaires to introduce the respondents to the research topic and also in order to avoid any mistrust or suspicion that respondents might have about the study. The cover letter was also expected to motivate the respondents to participate in the study and to answer the questions and assure them of both anonymity and confidentiality. The period for data collection span over a period of two weeks.
3.6. Data Analysis Methods

According to Cooper & Schindler (2013), data analysis is the process by which the data collected is reduced to a more controllable and convenient size so that the researcher can identify patterns or trends, apply statistical techniques and summarize the data. The next step involves coding of the responses into the coding sheets by transcribing the data from the questionnaires and assigning character symbols which are numerical symbols. The data will then be screened and cleaned of data to reduce or ensure there are no errors. Thereafter the data is transferred into SPSS version 24 for analysis. Cooper & Schindler (2013) further state that data analysis methods allow a researcher to digest and understand large quantities of data and effectively communicate their important aspects in a research study.

Sarantokos (1998) stated that the analysis of data enables the researcher to organize the data collected to assess and evaluate the findings, to arrive at some reasonable, valid and relevant conclusion(s). This study employed a descriptive statistical method (frequencies and percentages) for representing and summarizing of the biodata. Both descriptive statistics such as mean, frequency and standard deviation.

The inferential statistics instruments used for the research analysis were the Pearson’s coefficient test, the ANOVA test and regression tests. Pearson’s correlation coefficient, r, measures the strength of linear association between two variables. If the correlation is positive, there is a positive relationship and if the correlation is negative, there is a negative relationship. Correlation provides a basis for regression to predict the values for the dependent variable based on the relationship that exists between the independent variables and the dependent variables (Maiwada & Okey, 2015).

The ANOVA test is a statistical tool that measures the means of two or more groups to check if they are significantly different from each other. The ANOVA test looked at the effect of one or more factors by comparing the means of different samples. Multiple regression is a statistical analysis tool used to determine the value of a dependent variable based upon the value of two or more independent variables. Multiple regression is a statistical tool that best calculates the specific data which is being searched and can aid in predicting the factors that result in an outcome or predict an effect (Sheposh, 2018).
The results from the analysis were presented in the form of tables, charts and graphs. The multiple regression was guided by the following equation:

\[ y = a + b_1x_1 + e \]

\( y \) = competitive advantage.
\( a \) = the constant of the equation or the \( y \)-intercept.
\( b \) = the slope of the regression line.
\( x_1 \) = product Innovation
\( x_2 \) = process Innovation
\( x_3 \) = market Innovation
\( e \) = the error factor

### 3.7 Chapter Summary

This chapter focused on the methodology that will be used in conducting the study. Firstly, the research design proposed to be applied was descriptive in nature. The chapter specified the population, the sample frame, the sample size and the sampling technique to be used. Data collection was carried out through structured questionnaires which were shared the respondents for them to complete. Data was analysed using descriptive and inferential statistics and presented in the form of tables and figures using SPSS. Chapter four focused and discussed the study findings in relation to the research objectives.
CHAPTER FOUR

4.0. RESULTS AND FINDINGS

4.1 Introduction

This chapter presents results and findings based on the research questionnaire and data analysis completed. The first section presents demographic information, the second section presents technological innovations by Safaricom, the third section presents the effects of product innovation on competitive advantage, the fourth section presents the effects of service innovation on competitive advantage and the last section presents the effects of market innovation on competitive advantage, with a specific focus on Safaricom PLC.

4.2 General Information

4.2.1 Response Rate

For the research a total of 430 questionnaires were issued, 380 questionnaires were filled out and returned giving a response rate of 88%. This was sufficient for the study as indicated in Table 4.1 below.

Table 4.1: Response Rate

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filled and Returned</td>
<td>380</td>
<td>88%</td>
</tr>
<tr>
<td>Non-response</td>
<td>50</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>430</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.2.2 Reliability Test

A reliability test was conducted by use of Cronbach Alpha on the variables of product innovation, service innovation and market innovation on gaining competitive advantage over other mobile telecommunication players in the Kenyan market. Cronbach Alpha measures reliability or internal consistency. The general rule is that the desired Cronbach Alpha should be above 0.7 (α > 0.7). For this study, the Cronbach values were greater than 0.7 hence making the variables reliable.
### Table 4.2: Reliability Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cronbach Alpha</th>
<th>N (number of Items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Innovation</td>
<td>0.911</td>
<td>15</td>
</tr>
<tr>
<td>Service Innovation</td>
<td>0.938</td>
<td>15</td>
</tr>
<tr>
<td>Market Innovation</td>
<td>0.930</td>
<td>16</td>
</tr>
</tbody>
</table>

#### 4.2.3 Gender

From the respondents’ demographic information, results established that 55.8% of the respondents were female and while 44.2% were male. Therefore, majority of the respondents 55.8% were female as shown in figure 4.1 below.

![Figure 4.1: Gender](image)

#### 4.2.4 Level of Education

This research aimed to determine the level of education of the respondents. The findings established that majority of the respondents accounting for 58.7% a first-degree education, 22.6% had a Master’s Degree, 10.5% of respondents had a diploma, and 8.2% had a higher diploma. The highest level of education for the respondents was a first-degree education, followed by those with a Masters’ Degree. However, there were no respondents who had a post-graduate level degree (PhD), as depicted in figure 4.2 below.
The study sought to determine the residence of the respondents, based on the areas selected for the study. Findings showed that the highest percentage of respondents were 18.4% from Langata, 17.9% from Westlands and 17.1% from Imara Daima respectively. Followed by 14.2% respondents from Pipeline, 10% from Roysambu, 8.9% from Kilimani, 7.6% were from Embakasi, and 5.8% were from Kileleshwa. Therefore, majority of the respondents (18.4%) were from Langata shown in figure 4.3 below.
4.2.6 Age
The study aimed to determine the age range of the respondents. The findings established that majority of respondents accounting for 50.3% were of age range 18-28 years, followed by 36.8% of respondents were of the age range 29-39 years, 12.1% were of age range 40-49%, 0.5% were of age range 50-59 years and 0.3% were of age range 60 years and above. Majority of the respondents 50.3%, were of age 18-28 years as shown in figure 4.4 below.

Figure 4.4: Age

4.2.7 Safaricom Subscriber
The research sought to investigate if the respondents are Safaricom Subscribers. All 380 respondents said that they are Safaricom subscribers as shown in table 4.3 below

Table 4.3 Safaricom Subscriber

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>380</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.2.8 Duration of being a Safaricom Subscriber
The study sought to investigate the duration that respondents have been Safaricom subscribers. Findings showed that majority of the respondents have been subscribers for a period of 10-13 years. 28.2% of respondents who are the majority of respondents have been subscribers for 10-13 years, followed by 23.2% have been subscribers for a period of 14 years and above, 21.8% have been subscribers for 2-5 years, 21.3% have been subscribers for 6-9 years and 5.5% of the respondents have been subscribers for 1 year or less, as shown in Figure 4.5 below.
4.2.9 Safaricom Line Is Main/Primary Line of Use

The study sought to determine if respondents use Safaricom line as their primary line. Results showed that 88.2% use Safaricom as their primary line, 7.1% used Airtel as their main line, 3.45% used Telkom as their primary line. From the findings, it was established that majority of the respondents used Safaricom as their main line as shown in figure 4.6 below.

![Figure 4.6: Safaricom Line as Primary or Alternate Line](image)
4.3. The Effects of Product Innovation on Competitive Advantage

4.3.1 Product Innovations that Safaricom Customers are Familiar with

The study aimed to determine the product innovations that respondents are familiar with. Results showed that 88.9% were familiar with M-PESA, and 5.6% were familiar with M-Shwari and My Safaricom App. Majority of the respondents 88.9% were familiar with M-PESA as shown in figure 4.7 below.

![Figure 4.7 Product Innovations that Safaricom Customers are Familiar with](image)

4.3.2 Extent of Familiarity with Safaricom Product Innovations

The study sought to determine if respondents are familiar with various product innovations. The constructs of the study were M-PESA, M-PESA Global, Masoko, 4G, Jitambulishe, M-Shwari, M-Tiba, M-PESA 1 Tap, Songa by Safaricom and MySafaricom App. The study established that most of the respondents were familiar with M-PESA at a mean of \( M = 5.00, SD = 0.000 \), followed by 4G at a mean of \( M = 3.87, SD = 1.293 \) and then My Safaricom App at a mean of \( M = 3.48, SD = 1.387 \). The fourth one was M-Shwari at a mean of \( M = 3.28, SD = 1.481 \), fifth was Jitambulishe at a mean of \( M = 2.42, SD = 1.451 \). Sixth was Masoko at a mean of \( M = 2.22, SD = 1.319 \), Seventh was M-PESA Global a mean of \( M = 2.21, SD = 1.311 \), then eighth was MPESA 1 Tap at a mean of \( M = 2.07, SD = 1.380 \). Next was Songa by Safaricom at a mean of \( M = 1.92, SD = 1.210 \) and lastly M-Tiba at a mean of \( M = 1.69, SD = 1.110 \). Results showed that majority of the respondents \( M = 5.00, SD = 0.000 \) were familiar with MPESA as shown in table 4.4 below.
Table 4.4: Extent of Familiarity with Safaricom Product Innovations

<table>
<thead>
<tr>
<th>Technological Innovations</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of Familiarity MPESA</td>
<td>380</td>
<td>5.00</td>
<td>0.00</td>
<td>1</td>
</tr>
<tr>
<td>The extent of Familiarity - M-PESA</td>
<td>380</td>
<td>2.21</td>
<td>1.311</td>
<td>7</td>
</tr>
<tr>
<td>The extent of Familiarity - Masoko</td>
<td>380</td>
<td>2.22</td>
<td>1.329</td>
<td>6</td>
</tr>
<tr>
<td>Extent of Familiarity - 4G</td>
<td>380</td>
<td>3.87</td>
<td>1.293</td>
<td>2</td>
</tr>
<tr>
<td>The extent of Familiarity - Jitambulishe</td>
<td>380</td>
<td>2.42</td>
<td>1.451</td>
<td>5</td>
</tr>
<tr>
<td>The extent of Familiarity - M-Shwari</td>
<td>380</td>
<td>3.28</td>
<td>1.481</td>
<td>4</td>
</tr>
<tr>
<td>The extent of Familiarity - M-Tiba</td>
<td>380</td>
<td>1.69</td>
<td>1.110</td>
<td>10</td>
</tr>
<tr>
<td>The extent of Familiarity - M-PESA 1 Tap</td>
<td>380</td>
<td>2.07</td>
<td>1.380</td>
<td>8</td>
</tr>
<tr>
<td>The extent of Familiarity - Songa by Safaricom</td>
<td>380</td>
<td>1.92</td>
<td>1.210</td>
<td>9</td>
</tr>
<tr>
<td>The extent of Familiarity - MySafaricom App</td>
<td>380</td>
<td>3.48</td>
<td>1.387</td>
<td>3</td>
</tr>
</tbody>
</table>

4.3.3 Frequency of Usage Safaricom Product Innovations

The study intended to establish the frequency of usage for each of the product innovations. The constructs of the study were M-PESA, M-PESA Global, Masoko, 4G, Jitambulishe, M-Shwari, M-Tiba, M-PESA 1 Tap, Songa by Safaricom and MySafaricom App. The study established that respondents use M-PESA frequently at a 

\( M = 4.19, SD = 0.924 \), followed by 4G at \( M =3.64, SD =1.633 \), then My Safaricom App at \( M =2.64, SD = 1.518 \). The fourth was M-Shwari at \( M =1.89, SD =1.134 \), followed by Jitambulishe at \( M =1.39, SD = 0.899 \), then M-PESA Global at \( M = 1.37, SD = 0.764 \). The seventh was Masoko at \( M =1.30, SD = 0.693 \), followed by M-PESA 1 Tap at a \( M = 1.28, SD = 0.693 \), then Songa by Safaricom at \( M =1.21, SD = 0.708 \) and lastly M-Tiba at a \( M = 1.12, SD = 0.497 \). Findings showed that majority of the respondents use M-PESA frequently \( M = 4.19, SD = 0.924 \) as shown in table 4.5 below.
Table 4.5: Frequency of Usage of Safaricom Product Innovations

<table>
<thead>
<tr>
<th>Product Innovations</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of Usage -M-PESA</td>
<td>380</td>
<td>4.19</td>
<td>.924</td>
<td>1</td>
</tr>
<tr>
<td>Frequency of Usage- M-PESA Global</td>
<td>380</td>
<td>1.37</td>
<td>.764</td>
<td>6</td>
</tr>
<tr>
<td>Frequency of Usage -Masoko-</td>
<td>380</td>
<td>1.30</td>
<td>.693</td>
<td>7</td>
</tr>
<tr>
<td>Frequency of Usage -4G</td>
<td>380</td>
<td>3.64</td>
<td>1.633</td>
<td>2</td>
</tr>
<tr>
<td>Frequency of Usage - Jitambulishe</td>
<td>380</td>
<td>1.39</td>
<td>.899</td>
<td>5</td>
</tr>
<tr>
<td>Frequency of Usage M-Shwari</td>
<td>380</td>
<td>1.89</td>
<td>1.134</td>
<td>4</td>
</tr>
<tr>
<td>Frequency of Usage -M-Tiba</td>
<td>380</td>
<td>1.12</td>
<td>.497</td>
<td>10</td>
</tr>
<tr>
<td>Frequency of usage -M-PESA 1 Tap</td>
<td>380</td>
<td>1.28</td>
<td>.768</td>
<td>8</td>
</tr>
<tr>
<td>Frequency of usage -Songa by Safaricom</td>
<td>380</td>
<td>1.21</td>
<td>.708</td>
<td>9</td>
</tr>
<tr>
<td>Frequency of Usage- MySafaricom App</td>
<td>380</td>
<td>2.64</td>
<td>1.518</td>
<td>3</td>
</tr>
</tbody>
</table>

4.3.4 Product Innovation on Competitive Advantage

The effects of product innovation on competitive advantage were investigated using fifteen statements. The fifteen statements were presented to respondents to specify to what extent they agreed or disagreed with the statements. on the effect of product innovation on competitive advantage for Safaricom PLC. The responses were classified from 1 to 5 on a Likert scale. A score of 5 indicated that respondents strongly agreed with the statement and a score of 2 indicated that the respondents disagreed with the statements.

4.3.4.1 Descriptive Statistics

The findings indicated that of the 380 respondents, majority of the respondents 77.9% agreed and strongly agreed that products designed by Safaricom are innovative, 59.8% agreed that products designed by Safaricom are often new to the market, 80.8% agreed that Safaricom’s products have an impact on society, 76.1% agreed that Safaricom products add value to their customers.

Additionally, 68.7% agreed also that Safaricom’s products involve technologies. 73.4% agreed that Safaricom introduces its products before its competitors, 72.4% agreed that Safaricom introduces its products to competitive the market. It was also established that 54.5% agreed that Safaricom produces products that are all received by the customers, 57.45% agreed also that Safaricom’s improved products are received well than new products, 49.8% agreed that Safaricom’s products are the newest in the market in terms of customer preferences.
The study further revealed that 61.3% agreed that Safaricom products are considered unique, 59.5% agreed also that Safaricom’s products are better than those of their competitors, 68.7% agreed that Safaricom’s products are tailored made to meet customer needs, 72.6% also agreed that Safaricom’s products are relevant to customers and 64.5% agreed and strongly agreed that products innovation increases loyalty to Safaricom as shown in table 4.6 below.

**Table 4.6: Effects of Product Innovation on Competitive Advantage**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Strongly Disagree %</th>
<th>Disagree %</th>
<th>Neutral %</th>
<th>Agree %</th>
<th>Strongly Agree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products designed by Safaricom are innovative</td>
<td>1.6</td>
<td>2.9</td>
<td>17.6</td>
<td>36.8</td>
<td>41.1</td>
</tr>
<tr>
<td>Products designed by Safaricom are often new to the market</td>
<td>3.2</td>
<td>8.2</td>
<td>28.9</td>
<td>37.4</td>
<td>22.4</td>
</tr>
<tr>
<td>Products designed by Safaricom have a great impact on society</td>
<td>1.3</td>
<td>2.4</td>
<td>15.5</td>
<td>37.9</td>
<td>42.9</td>
</tr>
<tr>
<td>Safaricom products add value to customers</td>
<td>1.8</td>
<td>2.4</td>
<td>19.7</td>
<td>38.2</td>
<td>37.9</td>
</tr>
<tr>
<td>Products designed by Safaricom involve new technologies</td>
<td>2.4</td>
<td>3.4</td>
<td>25.5</td>
<td>39.5</td>
<td>29.2</td>
</tr>
<tr>
<td>Safaricom has introduced a new or significantly improved product into the market before its competitors</td>
<td>2.1</td>
<td>3.4</td>
<td>21.1</td>
<td>33.9</td>
<td>39.5</td>
</tr>
<tr>
<td>When Safaricom introduces new products, they are well received by consumers</td>
<td>2.1</td>
<td>4.5</td>
<td>21.1</td>
<td>40.0</td>
<td>32.4</td>
</tr>
<tr>
<td>Safaricom constantly introduces new products they are well received by customers</td>
<td>0.5</td>
<td>7.9</td>
<td>37.1</td>
<td>36.6</td>
<td>17.9</td>
</tr>
<tr>
<td>Safaricom’s improved products are received better than its newly introduced products</td>
<td>2.4</td>
<td>5.3</td>
<td>35.0</td>
<td>38.2</td>
<td>19.2</td>
</tr>
<tr>
<td>Safaricom products are the newest in the market in terms of customer preference</td>
<td>2.9</td>
<td>7.6</td>
<td>39.7</td>
<td>28.2</td>
<td>21.6</td>
</tr>
<tr>
<td>Safaricom products are considered unique compared to those of their competitors</td>
<td>2.9</td>
<td>7.6</td>
<td>28.2</td>
<td>36.8</td>
<td>24.5</td>
</tr>
<tr>
<td>Safaricom products are better than those of their competitors</td>
<td>2.6</td>
<td>7.1</td>
<td>30.8</td>
<td>35.3</td>
<td>24.2</td>
</tr>
<tr>
<td>Safaricom products are tailor made to meet customer needs</td>
<td>2.4</td>
<td>7.6</td>
<td>21.3</td>
<td>40.8</td>
<td>27.9</td>
</tr>
<tr>
<td>Safaricom products are relevant to me</td>
<td>2.6</td>
<td>3.7</td>
<td>21.1</td>
<td>40.8</td>
<td>31.8</td>
</tr>
<tr>
<td>Product Innovation increases my loyalty to Safaricom</td>
<td>3.2</td>
<td>9.2</td>
<td>23.2</td>
<td>30.3</td>
<td>34.2</td>
</tr>
</tbody>
</table>
4.3.5 Correlation between Product Innovation and Safaricom PLCs Competitive Advantage

The first objective of the study was to determine the effects of product innovation on Safaricom PLCs competitive advantage. Findings showed that there is strong positive significance between the two variables (r= 0.894, p = 0.000) as shown in table 4.7 below.

**Table 4.7: Correlation between Product Innovation and Safaricom PLCs Competitive Advantage**

<table>
<thead>
<tr>
<th>Product Innovation</th>
<th>Pearson Correlation</th>
<th>1</th>
<th>.894**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>380</td>
<td>380</td>
<td></td>
</tr>
<tr>
<td>Competitive Advantage</td>
<td>Pearson Correlation</td>
<td>.894**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>380</td>
<td>380</td>
<td></td>
</tr>
</tbody>
</table>

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

4.3.6 Regression between Product Innovation and Competitive Advantage

The model summary table 4.8 below results show that R square= 0.799 which implies that product innovation predicts 79.9% of competitive advantage.

**Table 4.8: Regression between Product Innovation and Competitive Advantage Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.894a</td>
<td>.799</td>
<td>.799</td>
<td>.30963</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Product Innovation

4.3.6.1 ANOVA of Product Innovation and Competitive Advantage

ANOVA table 4.9 below indicates that the linear regression model is of significantly of good fit at (F=1503.123, p=0.000).
4.3.6.2 Coefficients of Product Innovation and Competitive Advantage

The coefficients table 4.10 below, indicates that increasing product innovation by one-unit competitive advantage increases by 0.872 units significantly. Therefore, the model which is $Y = B_0 + B_1X_1$

$Y = 0.409 + 0.872X_1$

Where:

$Y$ = Competitive Advantage

$X_1$ = Product Innovation.

Table 4.10: Coefficients of Product Innovation and Competitive Advantage

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.409</td>
<td>.088</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Innovation</td>
<td>.872</td>
<td>.022</td>
<td>.894</td>
<td>38.770</td>
</tr>
</tbody>
</table>

4.4 Effects of Service Innovation on Competitive Advantage

The effects of Service Innovation on Competitive Advantage was investigate using fifteen statements. The fifteen statements were presented to respondents to specify to what extent they agreed or disagreed with the statements. on the effect of service innovation on competitive advantage for Safaricom PLC. The responses were classified from 1 to 5 on a
Likert scale. A score of 5 indicated that respondents strongly agreed with the statement and a score of 2 indicated that the respondents disagreed with the statements.

4.4.1 Descriptive Statistics
Findings showed that majority of the respondents 72.6% agreed and strongly agreed that Safaricom has quality service, 72.9% agreed that Safaricom offers innovative services, 72.1% agree and strongly agreed that Safaricom offers a wide array of service innovations, 60.5% agreed and strongly agreed that they are satisfied with the services offered by Safaricom, 59.8% agreed and strongly agreed that service innovation increases loyalty. Further, 63.7% of respondents agreed and strongly agreed that Safaricom develop unique service innovations, 42.9% also agreed that they are willing to pay premium for an innovative services, 62.8% agreed and strongly agreed that Safaricom offers better services than its competitors, 63.9% agreed and strongly agreed that Safaricom services are tailored to meet customer needs, 59.7% agreed and strongly agreed that Safaricom customer self-service application enables them to sort out issues.

The findings further illustrated that 51.3% of respondents agreed and strongly agreed that they prefer human interface to the Safaricom customer self-service application, 53.7% agreed and strongly agreed that My Safaricom App enables them to manage their Safaricom account and interact with customer care at a glance, 65.6% agreed and strongly agreed that Safaricom’s services are more convenient, 64.4% agree and strongly agreed that Safaricom uses the latest technology to deliver its services and 73.4% agreed and strongly agreed that Safaricom services are relevant to them as shown in table 4.11 below.
### Table 4.11: The Effects of Service Innovation on Competitive Advantage

<table>
<thead>
<tr>
<th>Variables</th>
<th>Strongly Disagree %</th>
<th>Disagree %</th>
<th>Neutral %</th>
<th>Agree %</th>
<th>Strongly Agree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safaricom quality service</td>
<td>1.8</td>
<td>4.7</td>
<td>20.8</td>
<td>42.1</td>
<td>30.5</td>
</tr>
<tr>
<td>Safaricom offers innovative services</td>
<td>1.1</td>
<td>3.2</td>
<td>22.9</td>
<td>42.9</td>
<td>30.0</td>
</tr>
<tr>
<td>Safaricom offers a wide array of service innovations</td>
<td>1.1</td>
<td>3.7</td>
<td>23.2</td>
<td>43.7</td>
<td>28.4</td>
</tr>
<tr>
<td>I am satisfied with the services that Safaricom offers</td>
<td>2.6</td>
<td>8.7</td>
<td>28.2</td>
<td>37.9</td>
<td>22.6</td>
</tr>
<tr>
<td>Service innovation increases loyalty to Safaricom</td>
<td>3.2</td>
<td>6.8</td>
<td>30.3</td>
<td>36.6</td>
<td>23.2</td>
</tr>
<tr>
<td>Safaricom develops unique services innovations in relation to its competitors</td>
<td>2.4</td>
<td>7.4</td>
<td>26.6</td>
<td>41.6</td>
<td>22.1</td>
</tr>
<tr>
<td>I am willing to pay a premium for an innovative service</td>
<td>7.1</td>
<td>14.5</td>
<td>35.5</td>
<td>27.1</td>
<td>15.8</td>
</tr>
<tr>
<td>Safaricom offers better services than its competitors</td>
<td>3.4</td>
<td>7.6</td>
<td>26.1</td>
<td>33.9</td>
<td>28.9</td>
</tr>
<tr>
<td>Safaricom services are tailored to meet consumer needs</td>
<td>2.9</td>
<td>8.7</td>
<td>24.5</td>
<td>38.9</td>
<td>25.0</td>
</tr>
<tr>
<td>The Safaricom customer self-service application enables me to sort out issues related to Safaricom services</td>
<td>6.6</td>
<td>4.7</td>
<td>28.9</td>
<td>35.0</td>
<td>24.7</td>
</tr>
<tr>
<td>I prefer the human interface to the Safaricom customer self-service application</td>
<td>7.4</td>
<td>9.7</td>
<td>31.6</td>
<td>27.6</td>
<td>23.7</td>
</tr>
<tr>
<td>The MySafaricom app enables me to manage my Safaricom account, and interact with customer care at a glance</td>
<td>6.8</td>
<td>7.1</td>
<td>32.4</td>
<td>27.9</td>
<td>25.8</td>
</tr>
<tr>
<td>Safaricom services are more convenient in comparison to its competitors</td>
<td>2.9</td>
<td>5.0</td>
<td>26.6</td>
<td>41.1</td>
<td>24.5</td>
</tr>
<tr>
<td>Safaricom uses the latest technology to deliver its services in comparison to its competitors</td>
<td>1.6</td>
<td>4.2</td>
<td>29.7</td>
<td>37.6</td>
<td>26.8</td>
</tr>
<tr>
<td>Safaricom services are relevant to me</td>
<td>2.9</td>
<td>2.4</td>
<td>21.3</td>
<td>37.1</td>
<td>36.3</td>
</tr>
</tbody>
</table>
4.4.2 Correlation between Service Innovation and Competitive Advantage

The second objective of the study was to assess the effects of service innovation on Safaricom PLC’S Competitive advantage. Findings showed that there is a strong positive correlation between the two variables \(r=0.892, p=0.000\) as shown in table 4.12 below.

**Table 4.12: Correlation between Service Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>Service Innovation</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.892**</td>
<td>380</td>
</tr>
<tr>
<td>Competitive Advantage</td>
<td>Pearson Correlation</td>
<td>.892**</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>380</td>
<td></td>
</tr>
</tbody>
</table>

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

4.4.3 Regression between Service Innovation and Competitive Advantage

The model summary table 4.13 below illustrates, the findings show that R square= 0.795 which implies that service innovation predicts 79.5% of competitive advantage.

**Table 4.13: Regression between Service Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.892a</td>
<td>.796</td>
<td>.795</td>
<td>.31219</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Service Innovation

4.4.3.1 ANOVA of Service Innovation and Competitive Advantage

ANOVA analysis result, indicates that the linear regression model is of significantly of good fit at \(F=1472.347, p=0.000\) as illustrated by table 4.14 below.

**Table 4.14: ANOVA of Service Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Regression</td>
<td>143.502</td>
<td>1</td>
<td>143.502</td>
<td>1472.347</td>
<td>.000b</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>378</td>
<td>.097</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>180.343</td>
<td>379</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitive Advantage
4.4.3.2 Coefficients of Service Innovation and Competitive Advantage

The coefficients table 4.15 below, indicates that increasing service innovation by one-unit competitive advantage increases by 0.854 units significantly. Therefore, the model which is 
\[ Y = B_0 + B_1 X_1 \]

\[ Y = 0.085 + 0.854X_1 \]

Where;

Y = Competitive Advantage

X1 = Service Innovation

Table 4.15: Coefficients of Service Innovation and Competitive Advantage

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.574</td>
<td>.085</td>
<td>6.761</td>
<td>.000</td>
</tr>
<tr>
<td>Service Innovation</td>
<td>.854</td>
<td>.022</td>
<td>.892</td>
<td>38.371</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitive Advantage

4.5 The Effects of Market Innovation on Competitive Market

The effects of market innovation on competitive advantage were investigated using sixteen statements. The sixteen statements were presented to respondents to specify to what extent they agreed or disagreed with the statements on the effects market innovation on competitive advantage for Safaricom PLC. The responses were classified from 1 to 5 on a Likert scale. A score of 5 indicated that respondents strongly agreed with the statement and a score of 2 indicated that the respondents disagreed with the statements.

4.5.1 Descriptive Statistics

Findings showed that of the 380 respondents, majority of the respondents 77.4% agreed and strongly agreed that Safaricom carries out aggressive marketing campaigns, 71.3% agreed and strongly agreed that Safaricom is on outlook for new market opportunities both locally and internationally, 65.8% agreed and strongly agreed that Safaricom offers unique value propositions, 46.3% agreed and strongly agreed that Safaricom products are competitively priced, 45.0% agreed and strongly agreed that Safaricom services are competitively priced. 58.2% agreed and strongly agreed that Safaricom products are appealing, 78.1% agreed and strongly agreed that Safaricom products are widely available, Further findings showed that 79.2% agreed and strongly agreed that Safaricom services are widely available. 78.2% of the respondents agreed and strongly agreed that
Safaricom products are well-positioned in the market, 72.4% agreed and strongly agreed that Safaricom communicates better about its products and services to consumers, 70.0% agreed and strongly agreed that Safaricom promotions have a positive impact on buying behaviour. Additionally, 54.7% of respondents agreed and strongly agreed that Safaricom advertisements have a positive impact on purchase decision, 74.5% agreed and strongly agree that Safaricom agents are easily accessible, 80.8% agreed and strongly agreed that Safaricom retail shops are easily accessible regardless of location and 75.4% agree and strongly agreed that Safaricom is innovative in terms of its marketing as shown in table 4.16 below.

Table 4.16: Market Innovation on Competitive Market

<table>
<thead>
<tr>
<th>Variable</th>
<th>Strongly Disagree %</th>
<th>Disagree %</th>
<th>Neutral %</th>
<th>Agree %</th>
<th>Strongly Agree %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safaricom carries out aggressive marketing campaigns</td>
<td>2.6</td>
<td>3.7</td>
<td>16.3</td>
<td>33.7</td>
<td>43.7</td>
</tr>
<tr>
<td>Safaricom is on outlook for new market opportunities</td>
<td>3.4</td>
<td>2.1</td>
<td>23.2</td>
<td>35.8</td>
<td>35.5</td>
</tr>
<tr>
<td>Safaricom offers unique value proportions</td>
<td>2.4</td>
<td>5.0</td>
<td>26.8</td>
<td>39.7</td>
<td>26.1</td>
</tr>
<tr>
<td>Safaricom products are competitively priced</td>
<td>10.3</td>
<td>15.5</td>
<td>27.9</td>
<td>29.5</td>
<td>16.8</td>
</tr>
<tr>
<td>Safaricom services are competitively priced</td>
<td>10.5</td>
<td>15.8</td>
<td>28.7</td>
<td>27.9</td>
<td>17.1</td>
</tr>
<tr>
<td>Safaricom products are appealing</td>
<td>3.9</td>
<td>8.2</td>
<td>29.7</td>
<td>35.3</td>
<td>22.9</td>
</tr>
<tr>
<td>Safaricom products are widely available</td>
<td>1.3</td>
<td>2.1</td>
<td>18.5</td>
<td>40.4</td>
<td>37.7</td>
</tr>
<tr>
<td>Safaricom services are widely available</td>
<td>1.8</td>
<td>2.4</td>
<td>16.8</td>
<td>38.4</td>
<td>40.5</td>
</tr>
<tr>
<td>Safaricom products are well positioned in the market</td>
<td>0.8</td>
<td>2.4</td>
<td>18.7</td>
<td>41.6</td>
<td>36.6</td>
</tr>
<tr>
<td>Safaricom services are well-positioned in the market</td>
<td>1.3</td>
<td>3.4</td>
<td>17.1</td>
<td>38.7</td>
<td>39.5</td>
</tr>
<tr>
<td>Safaricom communicates about its products and services to consumers</td>
<td>2.1</td>
<td>3.7</td>
<td>21.8</td>
<td>37.4</td>
<td>35.0</td>
</tr>
<tr>
<td>Safaricom’s promotions have a positive impact</td>
<td>3.4</td>
<td>7.6</td>
<td>28.9</td>
<td>33.9</td>
<td>26.1</td>
</tr>
<tr>
<td>Safaricom’s advertisements have positive impact</td>
<td>3.9</td>
<td>12.6</td>
<td>28.7</td>
<td>29.7</td>
<td>25.0</td>
</tr>
<tr>
<td>Safaricom agents are easily accessible</td>
<td>1.3</td>
<td>3.7</td>
<td>20.5</td>
<td>31.1</td>
<td>43.4</td>
</tr>
<tr>
<td>Safaricom retail shops are easily accessible</td>
<td>.8</td>
<td>3.7</td>
<td>14.7</td>
<td>37.9</td>
<td>42.9</td>
</tr>
<tr>
<td>Safaricom is innovative in terms of its marketing</td>
<td>3.2</td>
<td>2.4</td>
<td>19.2</td>
<td>31.6</td>
<td>43.7</td>
</tr>
</tbody>
</table>
4.5.2 Correlation between Market Innovation and Safaricom PLCs Competitive Advantage

The third objective of the study was to identify the effects of market innovation on Safaricom’s competitive advantage. Findings showed that there is strong positive significance between the two variables ($r=0.928 \ p=0.000$) as shown in table 4.17 below.

**Table 4.17: Correlation between Market Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>Market Innovation</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>Competitive Advantage</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>.928**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td></td>
<td></td>
<td></td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>380</td>
<td></td>
<td></td>
<td></td>
<td>380</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

4.5.3 Regression between Market Innovation and Competitive Advantage

The model summary table 4.18 results show that $R^2=0.861$ which implies that Market Innovation predicts 86.1% of competitive advantage.

**Table 4.18: Regression between Market Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>l 1</td>
<td>.928a</td>
<td>.861</td>
<td>.860</td>
<td>.25733</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Market Innovation

4.5.3.1 ANOVA of Market Innovation and Competitive Advantage

ANOVA indicates that the linear regression model is of significantly good fit at ($F=2331.412$, $p=0.000$), as per table 4.19 below.

**Table 4.19: ANOVA of Market Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>ANOVAa</th>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Regression</td>
<td>1</td>
<td>154.388</td>
<td>2331.412</td>
<td>.000b</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Residual</td>
<td>377</td>
<td>.066</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Total</td>
<td>378</td>
<td>179.353</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitive Advantage
b. Predictors: (Constant), Market Innovation
4.5.3.2 Coefficients of Market Innovation and Competitive Advantage  
The coefficients table 4.20 below, indicates that increasing Market Innovation by one-unit competitive advantage increases by 0.892 units significantly. Therefore, the model is
\[ Y = B_0 + B_1X_1 \]
\[ Y = 0.304 + 0.892X_1 \]
Where
\[ Y = \text{Competitive Advantage} \]
\[ X_1 = \text{Market Innovation}. \]

**Table 4.20: Coefficients of Market Innovation and Competitive Advantage**

<table>
<thead>
<tr>
<th>Coefficients^a</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>.304</td>
<td>.073</td>
<td>4.153</td>
<td>.000</td>
</tr>
<tr>
<td>Market Innovation</td>
<td>.892</td>
<td>.018</td>
<td>.928</td>
<td>48.28</td>
</tr>
</tbody>
</table>

^a. Dependent Variable: Competitive Advantage

4.5.4 Multi Linear Regression  
The study analysed the relationship between the dependent variable (competitive advantage) against co-factors (Market, Product and Service innovation). The results showed that the R Square value was 0.962 hence 96.2% of the variation in competitive advantage was explained by the variations in product, market and service innovation as illustrated in table 4.21.

**Table 4.21: Model Summary of Competitive Advantage and Its Co-Factors**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.981^a</td>
<td>.962</td>
<td>.961</td>
<td>.13565</td>
</tr>
</tbody>
</table>

^a. Predictors: Constant: Market Innovation, Product Innovation, Service Innovation

4.5.4.1 ANOVA of Competitive Advantage and its co-factors  
ANOVA analysis result of the regression between the dependent variable (competitive advantage) against product, service and market innovation at 95% confidence level, the F
critical was 3124.100 and the P-value was (0.000) therefore significant the results are illustrated below in table 4.22.

Table 4.22: ANOVA of Competitive Advantage and its Co-factors

<table>
<thead>
<tr>
<th>ANOVAa</th>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>172.453</td>
<td>3</td>
<td>57.484</td>
<td>3124.100</td>
<td>.000b</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>6.900</td>
<td>375</td>
<td>.018</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>179.353</td>
<td>378</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitive Advantage

b. Predictors: (Constant); Market Innovation, Product Innovation, Service Innovation

4.5.4.2 Coefficients of Competitive Advantage and Co-factors

The regression equation illustrated in table 4.21 established that taking product innovation, service innovation and market innovation into account and other factors held constant Competitive Advantage decrease 0.147 units and all the co-factors were significant.

\[
Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon
\]

\[
Y = -0.147 +0.272X_1 + 0.252X_2 + 0. 0.496X_3
\]

Where:

- \(Y\) is the dependent variable (Competitive Advantage);
- \(\beta_0\) is the regression constant;
- \(\beta_1, \beta_2, \beta_3\) are the coefficients of independent variables;
- \(X_1\) is the factor that determines cost leadership;
- \(X_2\) is factors that determine differentiation;
- \(\varepsilon\) is the error term
Table 4.23: Coefficients of Competitive Advantage and Co-factors

<table>
<thead>
<tr>
<th>Coefficients&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Unstandardized Coefficients</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>Product Innovation</td>
</tr>
<tr>
<td>Service Innovation</td>
</tr>
<tr>
<td>Market Innovation</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dependent Variable: Competitive Advantage

4.6 Chapter Summary

This chapter presents the results and findings achieved from the data collected. The first section presents the demographic information and in the subsequent section, the data is presented in line with the specific objectives of the study which sought to determine the effect of product, service and market innovation on Safaricom PLC’s competitive advantage. Chapter five detailed the discussions, conclusions and findings of the study.
CHAPTER FIVE

5.0 DISCUSSION CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction
This chapter presents a discussion of the study, conclusions and recommendations based on the findings of the study by comparing previous literature related to the effects of technological innovation on competitive advantage. The chapter will be organized based on the specific research objectives which sought to determine the effects of technological innovation on Safaricom gaining competitive advantage over its competitors in the Kenyan market.

5.2 Summary
The general objective of the study was to determine the effects of technological innovation on competitive advantage in the telecommunication industry in Kenya, with a specific focus on Safaricom PLC. The study was guided by three specific objectives which sought to determine and assess the effects of technological innovation (product innovation, service innovation and market innovation) on Safaricom gaining competitive advantage over its competitors in the Kenyan market from the perspective of its customers in Nairobi.

A descriptive research design was implemented for this study. The target population for this study were customers of Safaricom PLC in Nairobi. This population was selected for the reason that they frequently use and interact with Safaricom products, services and experience Safaricom marketing campaigns. The target population was 380 Safaricom customers drawn for selected areas within Nairobi based on the population within those areas. The sampling techniques used were cluster and random stratified sampling were appropriate for the study as this method enabled the researcher to increase the representation of the sample population, and the researcher was able to obtain adequate data from the clusters and subpopulations. The customers were picked for key areas within Safaricom’s area classifications in Nairobi East and Nairobi West. The sample size was arrived at based on the population of customers in each of the selected areas, and based on education levels of the customers.
Primary data was used in this study and was collected through self-administered questionnaires containing closed-ended questions. The analysis was conducted using the Statistical Package for Social Sciences (SPSS) software. Tables and figures were used to present the data for ease of understanding and analysis. Inferential statistics was also used to analyze data, the inferential statistics tool used was Pearson’s correlations analysis and regression analysis which were used to analyze the data.

From Pearson’s Correlation analysis to determine the relationship between product innovation and competitive advantage the findings revealed that there is a strong positive relationship (r=0.894, p=0.050). Thus, an increase in product innovation leads to an increase in competitive advantage. The study further analyzed the relationship between the dependent variable (competitive advantage) against product innovation, the findings showed that R² value was 0.799 hence 79.9% of the variation in competitive advantage was explained by the variation in product innovation.

The findings from the ANOVA analysis result of the regression between the dependent variable (competitive advantage) against product innovation at a 95% confidence level, the F critical was 1503.123 and the P-value was (0.000) therefore a significantly good fit. The regression equation established that the taking product innovation into account and other factors held constant competitive advantage increases by 0.872 and both variables were significant.

Pearson’s Analysis carried on service innovation and competitive advantage revealed that there is a strong positive relationship between service innovation and competitive advantage (r=0.892, p=0.000). Thus, an increase in service innovation leads to an increase in competitive advantage. The study further analyzed the relationship between the dependent variable (competitive advantage) against service innovation, the findings showed that the R square value was 0.796 therefore 79.6% of the variation in competitive advantage was explained by the variations in service innovation.

The findings from the ANOVA analysis results of regression between the dependent variable (competitive advantage) against service innovation at a confidence level of 95% showed that the F critical was 1472.347 and the P-value was (0.000) therefore a significantly good fit. The regression equation showed that when service innovation was taken into account and all other factors held constant competitive advantage increases by 0.854 and both variables were significant.
Pearson’s Analysis carried on market innovation and competitive advantage revealed that there is a strong positive relationship between market innovation and competitive advantage ($r=0.928$, $p=0.000$). Thus, an increase in service innovation leads to an increase in competitive advantage. The study further analyzed the relationship between the dependent variable (competitive advantage) against service innovation, the findings showed that the $R^2$ value was 0.861 therefore 86.1% of the variation in competitive advantage was explained by the variations in market innovation.

The findings from the ANOVA analysis results of regression between the dependent variable (competitive advantage) against service innovation at a confidence level of 95% showed that the F critical was 2331.412 and the P-value was (0.000) therefore a significantly good fit. The regression equation showed that when service innovation was taken into account and all other factors held constant competitive advantage increases by 0.892 and both variables were significant.

**5.3 Discussion**

**5.3.1 Effects of Product Innovation on Competitive Advantage**

Pearson’s correlation illustrated a positive relationship between product innovation and competitive advantage ($r=0.894$, $p=0.000$). Thus, an increase in product innovation leads to an increase in competitive advantage. The regression equation illustrated that taking product innovation into account with all other factors held constant competitive advantage increased by 0.799. Similar findings were found in studies carried out by (Beaudreau, 2016) was able to conclude that, there was strong positive relationship between product innovation and competitive advantage, the study concluded that an organization that develops a new product and adequately positions the product in the market; the organization has a greater probability of gaining competitive advantage, when compared with organizations that do not develop innovative products. Another study by Chen, Wang, Nevo, Benitez, & Kou (2015) was also able to conclude that it is critical for organizations to continually carry out product innovation, which increases their competitiveness and increase their value in the market place.

Reguia (2014) stated that product innovation is critical to any firm, for the reason that, the product, whether it is a good or service is the foundation for the formation of companies, and products have a direct link with consumers who are considered a critical part of the firm. From the findings of the study carried out by Onguko & Ragui (2012), on the role of
strategic positioning on products performance in the telecommunications industry in Kenya, the findings of the study were able to conclude that Safaricom has invested heavily in product innovation in comparison to other telecommunication players in the industry. From a study carried out by According to Letangule & Letting (2012) from a study carried out on researched on innovativeness in the telecommunication sector in Kenya, it was found that product innovation had a positive effect on profitability and competitive advantage Kariuki (2017) undertook a study to investigate the effects of innovation strategy in enhancing competitive advantage among commercial banks in Kenya, was able to conclude that there was a significantly positive relationship between product innovation and competitive advantage, and that product innovation directly and positively impacted productivity and competitiveness in the market.

Hart (1996) stated that product innovation key in helping firms to grow and maintain their competitive edge or position in the market, Hart (1996) further stated that the power of product innovation is irrefutable. It is important for firms to continually ensure that their products are updated, improved or renewed in order to retain a strong market presence and market share. Products that are continually improved play a critical role in long term business growth. Vickery & Droge (1995) maintains that firms that offer products that are adapted to the needs and wants of their target consumer and market them more effectively than their competitors, can gain competitive advantage, which subsequently, leads to sustainable competitive advantage. According to Andrew, Manget, Michael, Taylor & Zablit (2010), their study supports the findings stating that products in this era have fairly short product life cycles, therefore, product innovation is imperative to firms competing in very dynamic and turbulent environments, as is seen in the telecommunication industry in Kenya. Their findings also concluded that product innovation was rated among the top three strategic goals for 71% of organizations and that 70% of organizations considered newly developed products as of great significance to the organization’s future.

5.3.2 The Effects of Service Innovation on Competitive Advantage

Pearson’s correlation analysis was carried out to establish if there is a relationship between service innovation and competitive advantage. The results established that there was a positive correlation (r = 0.892, p=0.000). This, therefore, illustrates that an increase in service innovation leads to an increase in competitive advantage. The study further analyzed the relationship between the dependent variable (competitive advantage) against
service innovation. The findings showed that $R^2$ value was 0.795 hence a 79.5% variation in competitive advantage was explained by the variation in service innovation. The regression equation showed that taking service innovation into account and other factors held constant, competitive advantage increased by 0.854 and both variables were significant. Noorani (2014) supports the findings and states that in order to be more competitive, firms need to continually seek out new methods, tools and services that will aid them, in gaining competitive advantage. To achieve a competitive advantage, most firms prefer to introduce more innovative services. Today information technology is seen as the basis for the improvement of services and innovation and enables firms to offer better services to its consumers thus achieving competitive advantage.

Further evidence that supports the findings is a study carried out by Lin (2013) the findings of the study demonstrated that there was a positive effect between service innovation and marketing performance which led to an increase in competitive advantage for the firm. Bouwman et al., (2010) further supports the findings that, service innovation is thought to deliver competitive advantage to governments as well as to individual firms.

However, according to Johnson et al., (2000) granting that service innovation has attracted increasing attention from researchers, procedures and tools that are specific to for service innovation, are limited and depend on product innovation. Success factors for service innovation are associated with the nature of the service, the product market characteristics, the project synergy, the development process and innovation culture.

In support of this, a study carried out by Ogunnaike, Ibidunni & Adetowubo (2014) which evaluated, the association between service innovation and performance in the telecommunication industry and showed a significant relationship between service innovation and performance in the telecommunication industry in Nigeria. A further study carried out by Odhiambo (2015) on innovation and service quality in the telecommunication industry in Kenya, revealed that there is no relationship between service quality and innovation, which was against expectation.

In support of the findings, Berry et al.,(2006) stated that technology has revolutionized many previous inseparable services into services that can be consumed whenever or wherever, Moreover, information and communication technology have improved the service delivery process, through use of customer relations management processes, multi-channel methods, re-evaluating the client interface by introducing online
communication and distribution approaches, as well as the use of service marketing. Therefore, data is available to support innovation in particular service functions along the service process (Bouwman et al., 2010). Further evidence supporting the findings as stated by Nataya (2018) service innovation ought to be seen as a key competitive strategy for the reason that, if the product offered is good, but the service provided to the customer is lacking and not required, this means that the consumer will most likely move to a competitor who offers better service.

Berry et al., (2005) service innovation gives an organization competitive edge, through use of intangible resources such as trust, reputation, intellectual property and network and capabilities such as knowledge, culture, and skilled employees. These resources intangible resources are seen as very difficult to imitate and hence provide sustainable competitive advantage.

5.3.3 The Effects of Market Innovation on Competitive Advantage

Pearson’s correlation analysis was carried out to establish if there is a relationship between service innovation and competitive advantage. The results established that there was a positive correlation ($r = 0.928$, $p=0.000$). The study further analyzed the relationship between the dependent variable (competitive advantage) against service innovation. The findings showed that $R^2$ value was 0.861 hence an 86.1% variation in competitive advantage was explained by the variation in service innovation. This, therefore, illustrates that an increase in service innovation leads to an increase in competitive advantage. The regression equation showed that taking service innovation into account and other factors held constant, competitive advantage increased by 0.892 and both variables were significant.

Supporting the findings, Hartini (2012) argued that for firms to be able to gain competitive advantage, understanding market trends, the needs and wants of the consumer and the ever-changing environment are key requirements. A firm must work towards developing a competitive advantage in order to stay in business in this era of increasing globalization market innovation is one of the key determinants of a firm’s performance and competitive edge. Technological advancements and increased competition require firms to continually innovate which, in turn, affects the firm’s competitive advantage and performance (Kusumawati, 2010). Haddad & Algadeer (2004) similarly supported the findings, stating that market innovation determines the firm
capability to continually improve its products and services, which consequently leads to new or additional benefits to customers thus uniquely satisfying consumer needs. This further leads to, building competitive advantage for the organization through identification of consumer needs and converting these needs into technical specifications and differentiating the firm from its competitors by making the firm stand out.

Further studies support the findings, Senguo & Kilango (2015) conducted a study on the relationship between marketing innovation and improving customer satisfaction at Vodacom, Tanzania. The study proved that marketing innovation was adopted by telecommunication firms to improve corporate performance and achieve competitive advantage. In Kenya, Soi (2016) investigated the effect of innovation strategies on the performance of organisations in the telecommunications sector and found that market innovation had a strong positive association with firm performance and competitive advantage. In a further study conducted by Palmer, Wright, & Powers (2015) it was proven that there is a significant relationship between market innovation and a firm’s competitive advantage. As organizations continue to innovate, only organizations that can rapidly respond to the changes in the market remain relevant and competitive. There are several elements within a market that can be said to be impacted by innovation, these include some of the following market orientation and competition. Varis & Littunen (2010) in their study investigating the effects if marketing innovation on a firm’s performance found that there was a significantly positive relationship between marketing innovation and firm performance. However, in a study by Rosli & Sidek (2013) on the effects of innovation on the performance of Small and Medium Manufacturing Enterprises in Malaysia, it was proven that marketing innovation did not have significant effects on firm performance.

Wachjuni (2014) explained that firms must have the right strategy in order to benefit from using the chosen strategy. Organizations must develop a competitive marketing strategy where they can gain a competitive advantage by offering superior customer value. Further evidence of the findings is from Kariuki (2017) investigating the effects of innovation strategy in enhancing competitive advantage among commercial banks in Kenya, findings of this study have demonstrated the existence of a significant relationship between market innovation in commercial banks competitive advantage. The study concluded that all elements of market innovation that included customer satisfaction, employee performance
and overall organization performance were significant. When market innovation is creative, it provides a competitive advantage for the organization.

The findings from the multiple regression equation prove that there was a positive and significant relationship between product innovation and competitive advantage. Correspondingly, a positive and significant relationship between service innovation and competitive advantage was also established. The findings further indicate a positive relationship between market innovation and competitive advantage. These findings indicate that market innovation had the strongest relationship with competitive advantage for Safaricom PLC followed by product innovation and service innovation.

5.4 Conclusions

5.4.1 The Effects of Product Innovation on Competitive Advantage
The study established that there is a positive and significant relationship between product innovation and competitive advantage in the telecommunications sector. The study, therefore, concludes that there is a positive and significant effect of product innovation strategy on the competitive advantage of PLC. The study further concludes that the technological innovations included in the study, product innovation had the least influence on the competitive advantage of Safaricom PLC. This, therefore, means that Safaricom needs to invest in product innovations that are more relevant to consumers, in order to gain competitive advantage.

5.4.2 The Effects Service Innovation on Competitive Advantage
The study confirmed that there was a positive and significant relationship between service innovation and competitive advantage in the telecommunications sector. Therefore, the study concludes that service innovation has a positive and significant effect on the competitive advantage of Safaricom PLC. The study further concluded that service innovation was second in terms of its impact on competitive advantage. Safaricom has been able to use its service innovation to offer quality service to its consumers, which can be attributed to having a strong brand image and offering of services that are relevant to its consumers.

5.4.3 The Effects of Market Innovation on Competitive Advantage
The study affirmed that market innovation had a significant effect on competitive advantage in the telecommunications sector. The study therefore, concludes that there is a positive and significant effect of market innovation on the competitive advantage of
Safaricom PLC. The study concludes that market innovation has the most significant effect on the competitive advantage of Safaricom PLC, followed by product innovation and lastly service innovation which was also proven by the multiple regression equation.

5.5 Recommendations

5.5.1 Recommendations for Improvements

5.5.1.1 Product Innovation

The study recommends that Safaricom PLC should continuously engage in product innovation by carrying out market research to better understand its consumers’ needs, and possibly consider use focus groups – a targeted segment of its customers when they are developing new products or adding additional features to a product. Lastly, Safaricom could use customer intelligence to enhance collaboration between departments to ensure that customers are a priority. The insights from the collaboration between departments as well as consumers will aid Safaricom in making decisions that will further build their customer base enabling Safaricom PLC to build and maintain a competitive advantage against its rivals.

5.5.1.2 Service Innovation

Safaricom PLC should consistently measure and analyze the services offerings and service operations in order to further increase service efficiency. Safaricom PLC needs continually innovate and improve its processes, in order to maintain their competitive advantage. It is further recommended that Safaricom PLC needs to invest more in terms of offering value-added services, improved consumer experience, service delivery and quality in order to boost its competitive advantage over its rivals.

5.5.1.3 Market Innovation

The study recommends that to increase, as well as maintain the number of customers, Safaricom PLC needs to adapt new marketing innovation techniques, through the use of technologies available to reach a wider consumer base. The market innovations need to be segmented based on the needs of the consumer, in order for Safaricom PLC to gain further competitive advantage in the market to maintain its lead in the telecommunications’ sector in Kenya. Safaricom PLC should also continually measure its market innovations to ensure that the appropriate messages are being sent out to their consumers are relevant. Safaricom should, therefore, continue to develop products and services suited to the needs to their consumers, and market these products and services
effectively, and offer value for money in order for the company to maintain its market share and competitive edge against its competitors.

5.5.2 Recommendations for Further Research
The purpose of the study was to examine the effects of technological innovation on competitive advantage in the telecommunication sector in Kenya, case in point being Safaricom Plc. The study was guided by three specific objectives. To determine the effects of product innovation on Safaricom PLC’s competitive advantage; to assess the effects of service innovation on Safaricom PLC’s competitive advantage and to identify the effects of market innovation on Safaricom PLC’s competitive advantage. The study recommends that there should be a comparative case study carried out on all the telecommunication sector players to assess the effects of technological innovation on competitive advantage from both the view of employees within the organization and from consumers across Kenya.
REFERENCES


14 June, 2019

To whom it may concern

RESEARCH PROJECT BY SHEILA OWITI - STUDENT ID: 606280

The bearer of this letter is a student at the United States International University-Africa pursuing a Master of Business Administration – Strategic Management.

As part of the program, she is required to undertake a research project on “The Effects of Technological Innovation on Competitive Advantage in Kenya: A Case Study of Safaricom PLC.” This requires her to collect data and information from various relevant institutions.

Kindly assist by enabling her access data, information and contacts with respondents who can complete her questionnaires. I assure you that the information provided will be treated with the utmost confidentiality.

Should you have any queries regarding the student research please feel free to contact me on my email, tlinge@usi.ac.ke or phone, +254 730 116 419

Yours sincerely,

Dr. Teresia Linge
ASSOCIATE DEAN,
CHANDARIA SCHOOL OF BUSINESS
APPENDIX II: QUESTIONNAIRE

Kindly note this questionnaire is an academic exercise and all information given by the respondent will be treated with uttermost confidentiality. Kindly answer all the questions either by ticking (√) boxes or writing in the spaces provided. Your unbiased response is highly appreciated.

SECTION 1: GENERAL INFORMATION

Kindly answer all the questions by ticking in the boxes or writing on the spaces provided.

1. Kindly indicate your gender: a) Male ( ) b) Female ( )

2. Kindly indicate your highest level of education
   a) Diploma ( )  b) Higher Diploma ( )  c) Degree ( )  d) Masters ( )  e) PhD ( )

3. Place of Residence. Kindly state ______________________________

4. Kindly indicate your age bracket
   a) 18-28 ( )  b) 29-39 ( )  c) 40-49 ( )  d) 50-59 ( )  e) 60 and above ( )

5. How long have you been a Safaricom Subscriber?
   a) 1 year or less ( )  b) 2-5 years ( )  c) 6-9 years  d) 10-13 years  e) 14 years and above

6. Is your Safaricom line (sim card) your primary (main) line  Yes ( )  No ( )
   b) if, no, kindly tick which alternate lines (sim card) you possess.
      i) Airtel ( )  ii) Telkom ( )  iii) Other. Kindly state ________________
SECTION 2: THE EFFECTS OF PRODUCT INNOVATION ON COMPETITIVE ADVANTAGE

1. Which of the following product innovations from Safaricom are you familiar with? Tick all that apply.
   1) M-PESA ( ) 2) M-PESA Global ( ) 3) Masoko ( ) 4) 4G ( ) 5) Jitambulishe ( )
   6) M-Shwari ( ) 7) M-Tiba ( ) 8) M-PESA 1 Tap ( ) 9) Songa by Safaricom ( )
   10) My Safaricom App ( )

2. What is the extent of you are familiar with the following product innovations?
   1= Not at all, 2 = Little Extent – 3= Neutral, 4 = Large Extent, 5 = Very Large Extent

<table>
<thead>
<tr>
<th>Product Innovations</th>
<th>Not at All</th>
<th>Little Extent</th>
<th>Neutral</th>
<th>Large Extent</th>
<th>Very Large Extent</th>
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<tr>
<td>1. M-PESA</td>
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<td>2. M-PESA Global</td>
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<td>3. Masoko</td>
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<td>4. 4G</td>
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<td>5. Jitambulishe</td>
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<td>6. M-Shwari</td>
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<td>7. M-Tiba</td>
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<td>8. M-PESA 1 Tap</td>
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<td>9. Songa by Safaricom</td>
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<td>10. My Safaricom App</td>
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</tbody>
</table>

3. Kindly rate the frequency of your usage for each of the product innovations below:
   (1= Never, 2 = Rarely – 3= Sometimes, 4 = Often, 5 = Always)

<table>
<thead>
<tr>
<th>Product Innovations</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
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<tbody>
<tr>
<td>1. M-PESA</td>
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<td>2. M-PESA Global</td>
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<tr>
<td>3. Masoko</td>
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<td>4. 4G</td>
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<td>5. Jitambulishe</td>
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<td>6. M-Shwari</td>
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<td>7. M-Tiba</td>
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<td>8. M-PESA 1 Tap</td>
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<td>9. Songa by Safaricom</td>
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<td>10. My Safaricom App</td>
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</table>
4. From the statements kindly state if you (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree)

<table>
<thead>
<tr>
<th>No.</th>
<th>Statements</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Products designed by Safaricom are innovative</td>
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<tr>
<td>2</td>
<td>Products designed by Safaricom are often new to the market</td>
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<td>3</td>
<td>Products designed by Safaricom have a great impact on society</td>
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<td>4</td>
<td>Safaricom products add value to their customers</td>
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<td>5</td>
<td>Products designed by Safaricom involve new technologies</td>
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<tr>
<td>6</td>
<td>Safaricom has introduced a new or significantly improved product into the market before its competitors</td>
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<td>7</td>
<td>Safaricom constantly introduces new products to compete in the market</td>
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<td>8</td>
<td>When Safaricom introduces new products introduced products they are well received by consumers</td>
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<td>9</td>
<td>Safaricom’s improved products are received better than its newly introduced products</td>
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<tr>
<td>10</td>
<td>Safaricom products are the newest in the market in terms of customer preferences.</td>
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<tr>
<td>11</td>
<td>Safaricom products are considered unique compared to those of their competitors</td>
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<tr>
<td>12</td>
<td>Safaricom products are better than those of their competitors</td>
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<td>13</td>
<td>Safaricom products are tailored made to meet customer needs.</td>
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<td>14</td>
<td>Safaricom products are relevant to me</td>
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<tr>
<td>15</td>
<td>Product innovation increases my loyalty to Safaricom</td>
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</tbody>
</table>
SECTION 3: THE EFFECTS OF SERVICE INNOVATION ON COMPETITIVE ADVANTAGE

From the statements kindly state if you (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree)

<table>
<thead>
<tr>
<th>No.</th>
<th>Statements</th>
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<th>3</th>
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<th>5</th>
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<tbody>
<tr>
<td>1</td>
<td>Safaricom offers quality service</td>
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<td>2</td>
<td>Safaricom offers innovative services</td>
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<td>3</td>
<td>Safaricom offers a wide array of service innovations</td>
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<td>4</td>
<td>I am satisfied with the services that Safaricom offers</td>
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<tr>
<td>5</td>
<td>Service innovation increases my loyalty to Safaricom</td>
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<tr>
<td>6</td>
<td>Safaricom develops unique service innovations in relation to those of its competitors</td>
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<td>7</td>
<td>I am willing to pay a premium for an innovative service from Safaricom</td>
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<tr>
<td>8</td>
<td>Safaricom offers better services than its competitors</td>
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<td></td>
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<tr>
<td>9</td>
<td>Safaricom services are tailor-made to meet consumer needs</td>
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<td>10</td>
<td>The Safaricom customer self-service application enables me to sort out issues related to Safaricom services</td>
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<tr>
<td>11</td>
<td>I prefer the human interface to the Safaricom customer self-service application</td>
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<tr>
<td>12</td>
<td>The mySafaricom app enables me to manage my Safaricom account and interact with customer care at a glance</td>
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<tr>
<td>13</td>
<td>Safaricom services are more convenient in comparison to those of its competitors</td>
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<td>14</td>
<td>Safaricom uses the latest technology to deliver its services in comparison to those of its competitors.</td>
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<tr>
<td>15</td>
<td>Safaricom services are relevant to me</td>
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</table>
SECTION 4: THE EFFECTS OF MARKET INNOVATION ON COMPETITIVE ADVANTAGE

From the statements kindly tick (✓) if you (1= Strongly disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree)

<table>
<thead>
<tr>
<th>No.</th>
<th>Statements</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Safaricom carries out aggressive marketing campaigns in comparison to its competitors</td>
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<tr>
<td>2</td>
<td>Safaricom is on the lookout for new market opportunities both locally and internationally in comparison to its competition</td>
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<tr>
<td>3</td>
<td>Safaricom offers unique value propositions in comparison to its competitors</td>
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<tr>
<td>4</td>
<td>Safaricom’s products are competitively priced</td>
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<tr>
<td>5</td>
<td>Safaricom services are competitively priced</td>
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<tr>
<td>6</td>
<td>Safaricom products are appealing in comparison to its competitors’ products</td>
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<tr>
<td>7</td>
<td>Safaricom products are widely available</td>
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<tr>
<td>8</td>
<td>Safaricom services are widely available</td>
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<tr>
<td>9</td>
<td>Safaricom products are well-positioned in the market</td>
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<tr>
<td>10</td>
<td>Safaricom services are well-positioned in the market</td>
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<tr>
<td>11</td>
<td>Safaricom communicates about its products and services to consumers better than its competitors</td>
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<td>12</td>
<td>Safaricom promotions have a positive impact on my buying behaviour in comparison to those of its competitor brands</td>
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<tr>
<td>13</td>
<td>Safaricom advertisements positive impact on my purchase decision in comparison to those of competitor brands</td>
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<tr>
<td>14</td>
<td>Safaricom agents are easily accessible than those of competitor brands</td>
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<tr>
<td>15</td>
<td>Safaricom retail shops are easily accessible regardless of where I am located in Nairobi in comparison to competitor retail shops</td>
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<tr>
<td>16</td>
<td>Safaricom is innovative in terms of its marketing</td>
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</tbody>
</table>

THANK YOU FOR YOUR TIME.
THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

CONDITIONS
1. The License is valid for the proposed research, location and specified period.
2. The Licensee and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before commencement of the research.
4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
5. The License does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.

National Commission for Science, Technology and Innovation
P.O. Box 30623 - 00100, Nairobi, Kenya
TEL: 020-406 7000, 0713787878, 0735490445
Email: dg@nacosti.go.ke, registry@nacosti.go.ke
Website: www.nacosti.go.ke

Serial No. A 25656

CONDITIONS: see back page

APPENDIX III: NACOSTI PERMIT

THIS IS TO CERTIFY THAT:
MS. SHEILA AKINYI OWITI of UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA, 13757-100 Nairobi, has been permitted to conduct research in Nairobi County on the topic: THE EFFECTS OF TECHNOLOGICAL INNOVATION ON COMPETITIVE ADVANTAGE IN KENYA: A CASE STUDY OF SAFARICOM PLC for the period ending: 27th June, 2020.

[Signature]

[Director General]

National Commission for Science, Technology & Innovation

89