USE OF MOBILE APPLICATIONS TO GAIN SUSTAINABLE COMPETITIVE ADVANTAGE AT THE KENYA MEDICAL SUPPLIES AUTHORITY (KEMSA)

BY

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NOVEMBER 2013
DECLARATION

This management research project is my original work and has not been presented to any other university or institution of learning for the award of a degree, diploma or certificate.

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SUPERVISOR’S APPROVAL

This management research project has been submitted for examination with my permission as the University Supervisor.

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DEDICATION

This research is dedicated to my family, especially my wife Dorothy Ndeansia Gichora and children Baraka Ngumi Gichora, Wema Tarimo Gichora, who have made their sacrifices to enable me reach this far. I also dedicate to my parents Mr. and Mrs. Peter Ngumi Gichoho, who planted the first seed, and never got tired of encouraging me to FINISH the race.
ACKNOWLEDGEMENT

Above all, I thank God almighty for the Grace and Favor to begin and complete my MBA. His is my Lord Ebenezer. This far I have come by His Grace.

To list everyone who has played a part in this process would be impossible, however in everything there are key roles, and supporting roles. I wish to recognize the effort and dedication of my supervisor Dr. James Gathungu. His resilience on ensuring we followed the proper formatting and process resulted in his students receiving very positive comments when defending their proposals me included. Dr. Gathungu standard is high, but once met is invaluable. I also acknowledge his insistence that we prepare a research project that we would be proud of. I know I will always be proud of this document in its entirety, and will likely always be able to defend it even without reading it again in the years to come.

I also wish to acknowledge the lecturers who inspired me to pursue the course with great anticipation for its contribution in my career. I also thank the friends I met along the way, with whom I spent hours studying, discussing and succeeding together, including Agnes Njakai, and Ann Maina who shared the same project supervisor. And last but not least my best friend Samuel Njuguna Gathigi, who has always encouraged me to finish the MBA for “us”. Here it is bro!
ABBREVIATIONS AND ACRONYMS

APPS  - Applications
BOP   - Base of Pyramid
CBK   - Central Bank of Kenya
CCK   - Communications Commission of Kenya
EPZA  - Export Processing Zone Authority
GPS   - Global Positioning Satellite
GSM   - Global System for Mobile Communication
ICT   - Information Communication Technology
KEMSA - Kenya Medical Supplies Authority
Mbps  - Megabit Per Second
MEDS  - Mission for Essential Drugs Supplies
MRA   - Medicines Regulatory Authority
UNIDO - United Nations Industrial Development Organization
USSD  - Unstructured Supplementary Service Data
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ABSTRACT

This study sought to establish whether use of mobile applications yields competitive advantage in the form of customer retention. It was a cross-sectional exploratory study that used data collected through a self-administered questionnaire. It was targeted at Kenya Medical Supplies Authority customers who were selected through a purposive sample of 10 facilities, after the public launch of the KEMSA e-mobile application. The sample was two respondents each from 10 facilities that had been selected for an intense training and adopted by KEMSA’s customer service team to ensure that these facilities were fully utilizing the features of the e-Mobile application. Due to the small size of respondents, data was analyzed using descriptive statistics. The relationship between key variables was analyzed using Pearson’s Chi Square Test of Association. The study finds that there was a significant association between the perceptions of improved quality of service arising from the use of a mobile application, with the factor that influences the choice of drug supplier the most. A review of the responses revealed that 40% of the respondents indicated that there was no improvement in the quality of service as a result of the mobile application, and were also found to have indicated that efficiency in distribution was the factor that influenced their choice of drug supplier the most. In total, only 15% indicated the ease of ordering as the factor that influenced their decision the most, which was a proposed benefit of the mobile application. The majority of respondents also indicated no difference in their willingness to continue ordering from KEMSA as a result of the mobile application, with less than half indicating they were ‘somewhat’ willing to remain with KEMSA because of the mobile application. The Value Chain and Competitive advantage introduced by Porter (1985) points to the fact that competitive advantage arises from a firm’s ability to minimize its raw material and production costs, and maximize efficiency in its production and distribution. In other words, it must achieve best value in all its value chain processes in order to maximize the competitive advantage. The emphasis on the whole value chain seems to infer that inefficiency or high costs in any one of the value chain processes could adversely affect the overall competitive advantage gained by a firm. In the case of drug distribution firms like KEMSA, it is apparent that efficiency in distribution significantly influences the customer’s choice of drug supplier, and hence the firm’s ability to compete and to realize a competitive advantage. Additional studies in context of other market factors such as price of commodities may help to further isolate why the introduction of a mobile application is not seen to yield significant competitive advantage. There were several limitations during this study including time, funds, a delayed roll out of the mobile application, as well as a limited sample size. The study therefore recommends reviewing of the entire supply chain process to ensure that competitive gains are retained, such that a supporting technology like a mobile application can yield the expected competitive advantage. This is especially in view of the changing dynamics in Kenya’s medical sector and with the devolution of both government services and procurement now in high momentum. It is expected that County governments will have greater control of the spending or purchase decisions, unlike in the past where the central government procured through KEMSA for all public health facilities. This will expose KEMSA to increased competition, thus a need to review the supply chain processes in order to gain and retain a competitive advantage.

Key Words: Competitive Advantage, Mobile Applications, Pharmaceutical Industry
CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Mobile applications have become a fast growing phenomenon worldwide. There are approximately over 1.85 Million mobile applications available for download today. A mobile application is any software designed to run on smart phones, or other mobile devices such as tablets and even mobile phones (Top iOS and Android apps, 2013). A research conducted by ComScore in the U.S. showed that more people were using mobile applications compared to browsing on their phones at a percentage of 51.1% to 49.8% respectively (Perez, 2012).

Mobile applications have also gained traction as business enablers rapidly. Mobile applications enable customers to interact with the business while on the move. They do not need to visit a facility. Use of mobile applications in business includes provision of services to customers such as mobile banking and enquiries, customer experience applications, retail or proprietary information as well as day to day tasks such as updates, and collecting data (Queensland Government, 2013). In the study by Mutua (2009) on Mobile Banking as a strategic response, momentum in the integration of information communication technology (ICT) into various business functions has increased.

Safaricom’s recent launch of “Lipa na MPESA” is an example of a mobile application designed to provide cashless transactions. In the case of “Lipa na MPESA”, vendors and traders are able to receive payments from customers through the MPESA mobile money transfer system (safaricom.co.ke). The MPESA mobile application gives businesses a means to collect and deposit proceeds from sales, all from the comfort of their mobile phone. These same receipts can be used to procure supplies from a
supplier or supplier who runs the same service. Therefore for a small and medium size business, receipt of cash, banking, and payments are all conducted from a mobile phone.

The volume of money transferred through mobile applications continues to grow steadily. An online article by Ventures Africa (2013) refers to a Central Bank of Kenya (CBK) report that mobile phone based transactions reached KSh425 billion ($5 billion) across all networks in the first three months of 2013. There are over 19.3 million mobile money service subscribers in Kenya. This represents about 50% of Kenya’s population, which shows that the use of mobile applications has taken firm root. CCK statistics indicate that in at the end of the second quarter of the fiscal year 2012/2013, there were 30.7 million mobile subscribers, with an estimated mobile penetration of 78% (Communications Commission of Kenya, 2013).

1.1.1 Sustainable Competitive Advantage

The phrase sustainable competitive advantage encompasses two ideas; the first about sustainability or ability to persist over a long period of time, and the second competitive advantage. Porter (1985, p. 11) states that “The fundamental basis of above-average performance in the long run is sustainable competitive advantage”. This again emphasizes on the long run and an advantage or above average performance. A firm begins with an advantage that over its competitors, therefore, generating higher sales or profits or keeping and gaining more customers. When the profit rate is above the industry average, a firm has a competitive advantage. The firm gains sustained competitive advantage when this above average profit rate is achieved for a long period (Hill & Jones, 2001).
Any effort in an organization that results in retaining more customers than its competitors would be considered to yield competitive advantage. The effort may be applied anywhere in the value chain with the goal of attracting new buyers or withstand competitive pressure. These efforts then improve the market position, resulting in competitive advantage (Thompson & Strickland, 1993). Michael Porter clearly illustrates this concept in the value chain framework.

1.1.2 Mobile Applications
Mobile applications have found beneficial use in business and provide a delivery mechanism for customer service and direct communication with clients from the application. Mobile applications are an opportunity to improve service delivery for your customers and better solutions for business (Gitonga, 2013). With high penetration rates in Kenya, and high consumption of data services through mobile phones, an organization can stay in touch with its customers twenty four hours a day, seven days a week. Statistics for the communications sector for quarter two of the financial year 2012/2013 indicate that mobile internet subscriptions represented 99% of 9.49 million internet subscribers in Kenya, with data utilization at 328,641 Mbps during the same period (CCK, 2013).

Information retrieval from sources such as new agencies, weather and publishers in general is the primary use of mobile applications. Built in applications include applications for scheduling communication such as calendar, email communication, contact management. These vary in features and ease of use but and are in even the most basic phones. With the availability of smartphones, applications have increased in complexity, to include interactive gaming, GPS, mapping and business automation. The applications also now span industries, from banking, to retail, to distribution and tracking, and even education.
1.1.3 Pharmaceutical Industry in Kenya

Kenya has a broad pharmaceutical industry. According to Export Processing Zone Authority (EPZA) (2005) the pharmaceutical industry is divided into three segments. These are Manufacturers, Distributors and Retailers. The distribution segment has two main players namely, The Kenya Medical Supplies Authority (KEMSA) and the Mission for Essential Drugs and Supplies (MEDS). These two organizations server to key segments of Kenya’s health facilities, the public and faith based organizations. As late as 2010, there was no available list of licensed private sector wholesalers and distributors. KEMSA which serves the public health facilities has a central store in Nairobi, and 8 regional warehouses through which is extends its reach. (Ministry of Medical Services, 2010).

On a regulatory level, there exists the Medicines Regulatory Authority (MRA) which is also referred to as the Pharmacy and Poisons Board. It is responsible for inspection of pharmaceutical products including import control, licensing and quality control. It scope also includes regulating medicine advertising and promotion, clinical trials and pharmacovigilance (Ministry of Medical Services, 2010).

1.1.4 Kenya Medical Supplies Authority

KEMSA was formed on 11th February 2000. It took the place of previous successive medical stores to provide adequate quality drugs to public health facilities at the best market value (www.kemsa.co.ke). KEMSA undertakes the centralized procurement for pharmaceutical and related products for over 6000 public facilities in Kenya (Ministry of Medical Services, 2010). These purchases amount to over 30% of all prescription drugs in Kenya (UNIDO, 2010). In her study, Mogozi Sheila (2010) notes that KEMSA logistics unit has a distribution structure designed to reach all public hospitals, including dispensaries, and health centers countrywide.
In July 2013, KEMSA launched its mobile application branded KEMSA e-Mobile. This application was designed to enable KEMSA’s customers to order commodities and supplies from their mobile phones. The application includes consumption reporting, commodity ordering, and stock queries both at the main warehouse and at health facilities countrywide. The application also includes feedback features such as the ability to provide general feedback, as well as report on the status of commodities delivered to each facility.

The KEMSA e-mobile application is accessible through two technologies. USSD which is a GSM technology that can be access by even the most basic GSM phone, and JAVA application, which is a downloadable, phone resident application that works on majority of JAVA enabled phones. The choice USSD technology was to allow all facilities to use the mobile application irrespective of the complexity of the mobile handset in use. Users with data or internet services on their phone can download the Java based software, install it on their phone, and generate orders and reports from their phones. These reports are then transferred electronically to KEMSA system upon submission.

1.2 Research Problem

When a firm delivers benefits similar to its competition, but at a better price, or delivers a product with benefits greater than the competition, it is considered to have a competitive advantage. In the first case, it is a cost advantage and in the second a differentiation advantage. In either case, consumers of the product have to choose the given benefit. For example, in a price sensitive market, consumers will choose the lower cost, which is why the company would have an advantage over the other. In a niche market, consumers will choose the benefits over cost, therefore pay more, and this gives the company an advantage. Consumer preference for the value then drives
demand, leading to superior profits to the competition, which is the ultimate business goal. Johnson and Scholes (2002, p. 319), states that “Competitive advantage is the bases on which a business unit might achieve competitive advantage in its market”.

The hard and soft benefits of e-procurement as identified by Lysons and Farrington (2006) include automated purchase to buy process and improved ordering and tracking. Another benefit is increased availability of information for management and accounting. In the context of competitive advantage, improved ordering and tracking and availability of information relative to the industry would be expected to yield an advantage. The prediction is that KEMSA’s use of a mobile application to differentiate itself from the competition will yield a competitive advantage in the form of customer retention. This study seeks to establish whether mobile technology can help KEMSA differentiate itself from competition, and therefore gain a competitive advantage.

In her study of Determinants of Adoption of Mobile Phone Banking by the Base of Pyramid (BOP) Customers of Commercial Banks in Kenya, Kariuki (2012) established that use of mobile phones resulted in faster and more affordable services in the banking sector. In her study, 75% of those surveyed showed preference to using mobile banking technology. Her study also established that 94% of respondents used the mobile banking application, which supports the fact that use of mobile applications has been significantly adopted by Kenyans. Another study performed in relation to mobile applications was by Mutua (2009) who focused on mobile banking as a strategic response by Equity Bank Kenya Limited to the Challenges in the external environment. A majority of banks now offer mobile banking services. To be precise, 65% of Kenyan banks offer mobile banking services. Much of Mutua’s finding was in relation to the banks positioning and marketing to increase the use of
the mobile application, and did not indicate whether any competitive advantage was gained. However his study did find that to a large extent, bank executives perceived the ability to bank anywhere, anytime conveniently as key attributes to mobile banking. Gikonyo (2009) also observed the same noting that this kind of convenience is what makes many users switch to mobile applications where available.

Mobile applications result in customer retentions or stickiness. Kinyanjui (2012) in his study on Mobile Value Added Services adoption and customer stickiness in Kenya, established that mobile information value added services were most important for mobile users. This indicated that ability to access information was key. Mobile application use also influences banking services by making them more convenient. Kimondo (2012) in his study established that 63.2% of respondents felt that mobile wallet affected banking services efficiency and effectiveness. These studies conducted in Kenya all focus on an element of mobile applications such as adoption strategies, influence on existing services and perception within the organization; however no study has sought to establish whether use of mobile applications in business can lead to sustainable competitive advantage through customer retention. In a highly competitive environment, the prediction is that increasing convenience to customers, such as through mobile ordering, will increase the willingness of customers to remain loyal to the firm, and thus increase customer retention. Does use of a mobile application result in customer retention, thereby creating a sustainable competitive advantage?

1.3 Research Objective

The research was aimed at establishing whether the use of a mobile phone application results in customer retention, hence a sustainable competitive advantage for KEMSA
1.4 Value of Study

Mobile applications have grown exponentially in the last few years with new innovative ideas being developed every day. This study therefore contributes significantly to theory by introducing knowledge about the impact of mobile applications on the competitive advantage an organization has. Findings from this study help spur more studies in the area the use of mobile applications for competitive advantage.

With many organizations shifting towards mobile phone based services for customers, this study would be useful in advising strategic decision making at various levels within stakeholder organizations. The Government of Kenya can establish whether use of mobile applications can improve in service delivery to citizens, and therefore advise on whether to try the same approach for multiple public service delivery channels. KEMSA will also understand better if investing in mobile technology has resulted in a competitive advantage for KEMSA in the industry. Donor agencies supporting the medical sector in Kenya can also, on the basis of the findings of this research project, evaluate the usefulness of mobile applications in public health services.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction:

This chapter presents reviews of existing literature on theories around competitive advantage, including the generic competitive strategies, sustainability, value chain and competitive advantage, and information technology and strategy.

2.2 Competitive Advantage Theory

Much of the theory surrounding competitive advantage has been well developed over time, and has found wide acceptance. In introducing the concept, Porter (1985) quickly establishes the two fundamental types of competitive advantage as Cost Advantage and differentiation noting that in the long run, a firm success or superiority is relative the competing firms. The superiority can be in the context of a firm producing output using fewer inputs than its competitors and at low cost, or achieving returns that supersede those of its competitors (Porter, Competitive Advantage of Nations, 1998). Porter emphasizes that each of these strategies is fundamentally different in how it achieves a competitive advantage. In discussing the concept of competitive scope, Porter (1985, p. 12) states that “if a firm is to attain a competitive advantage, I must make a choice about the type of competitive advantage it seeks to attain and the scope within which it will attain it.” This alludes to the fact that a firm must determine the breadth of its target within an industry. Johnson and Scholes (2002, p. 319), state that “Competitive advantage is the bases on which a business unit might achieve competitive advantage in its market”.

From the above definitions we realize that competitive advantage is about being able to produce a product or service that is relatively more appealing to the target market. And the ability to sustain it is based on factors within your organization that your competition cannot readily imitate.
2.3 Generic Competitive Strategies

A company can position itself in the industry to earn higher returns relative to the industry. As such, its competitiveness is gauged on whether its returns are lower or higher than industry average. Porter introduces the generic strategies noting that it is from industry structure that both cost advantage and differentiation arise, specifically, when a firm is able to withstand the five forces better than the competition (Porter, Competitive Advantage, 1985). Achieving relatively better efficiency while providing the exact same product as competitors is what would lead to cost leadership, the alternative to which is to provide a product that different from the competition, and preferably a difference that commands a higher price. He goes on to say that cost leadership would enable the firm to “cope with any downward pressure on prices better than its rivals” (Saunders M., 1997, p. 99).

Figure 2.1. Three Generic Strategies

![Competitive Advantage Table]


From Figure 2.1, it is evident that each competitive strategy is independent if not exclusive. This means that tactics applied to each strategy may not be compatible with those applied in another strategy. For example, a low cost product can easily be replicated, therefore, would not fit in with differentiation strategy, since differentiation may require additional features or higher quality materials in order to
be unique. A practical example in Kenya is Yoghurt. In a Kenyan supermarket, there are many yoghurt brands available. They range from low-cost yoghurts that do not taste any better than their competitors, to those that have unique features. Companies like Brookside and Daima have introduced unique yoghurts that include real fruit inside. However while trying to make their yoghurt unique; the introduction of real fruit increases the price of the product. Thus a product cannot be unique, and cost the same as its low-cost no-frills alternative as outlined in Table 2.1.

2.3.1 Cost Leadership

In a cost leadership strategy, a firm would seek to produce at the lowest cost relative to the industry, through various approaches including use of technology, and economies of scale in production. Porter (1985) argues that this would make it the low-cost producer in its industry, with a broad scope covering many segments or related industries. He notes however that such a leader must achieve parity or proximity with competitors, meaning the product or service must be perceived as similar or not different by the market. This would enable price to be the significant difference between competing products.

When customers cannot afford higher quality of products or services, they tend to buy lower quality products or the cheapest available often referred to as no-frill products or services. The willingness of consumers to buy these no-frill bottom-end products without much care for the quality of the products is what makes a low-cost strategy possible. The other alternative to this is for the firm to produce at a price that is lower relative to its competitors, while offering the same value as them. The consumers have to perceive the competing products as similar in value in order for this strategy to succeed. This is known as the low price strategy (Johnson & Scholes, 2002). Porter (1985, p. 12) also discusses the no-frills to the effect that “Lost-cost producers
typically sell a standard or no-frills, product and place considerable emphasis on reaping scale or absolute cost advantages from all sources”. All sources of cost advantage must be exploited in order to offer a standard no-frills product or service, while aiming to be the leader in the industry or segment a firm competes in (Grant, 1998).

2.3.2 Differentiation strategies

The world’s population is estimated at 7.1 billion according to the U.S. Census Bureau (2013), and each one person is different and unique. This means that while we have common features, cultures and preference, we are still biologically and psychologically different. This is what creates room for differentiation as a strategy. When a firm picks values or product features widely valued by buyers, and strives uniquely meet those needs, it is able to achieve premium pricing, and thus differentiate itself from the competition (Porter, Competitive Advantage, 1985). The differentiation strategy seeks to deliver products or services that are perceived by consumers as unique or different from the rest in features or dimensions valued by consumers, at the same price as the competitors. When a firm provides something unique beyond the low-price, and consumers value the offering, differentiation is achieved (Grant, 1998). Farish (1995) argues that it is those products that are developed deliberately to satisfy specific well researched consumer needs that succeed in the market.

A buyer must find the additional cost of a differentiated product as being below the additional value in comparison to competing products, in order to pay the extra premium. The firm that produces this product must then have sustainable advantages in order to continue to offer this value that is uniquely valuable to the buyer, while staying ahead of the competition (Pearce & Robinson, 1997). This clearly shows that
a buyer will evaluate more than just the price. If they consider what they get from the product is more critical than cost, they will then buy the product even at a slightly higher cost than available alternatives.

2.3.3 Stuck in the Middle

In the beginning of this section, we discussed the incompatibility of tactics within each generic strategy. Porter (1985, p. 16) illustrates it clear by stating that “A firm that engages in each generic strategy but fails to achieve any of them is ‘stuck in the middle’”. This means that at any one point the firm will neither be the cheaper nor unique compared to competing firms. And assuming that market choices are constrained exclusively to low-price or unique or different offerings, a firm with a hybrid strategy trying to be cheap and unique at the same time would most likely not satisfy the distinct preferences, and therefore possess no advantage. Porter argues that such firms that don’t achieve leadership or advantage remain behind in each of the competitive strategies. They are at a disadvantage in the industry. The Hybrid Strategy envisions a combination of both low-price and differentiation strategies based on market conditions. This would require a firm to have the ability to provide enhanced value based on customer needs, while have a low-cost base that is sufficient to develop a basis for differentiation (Johnson & Scholes, 2002).

Low profitability however is the only possible result of being stuck in the middle. Low price customers will likely find cheaper alternatives, and customers shopping for unique products or services will most likely not be pleased with the options available. He also notes that being stuck in the middle is a sign that a firm is not willing to decide how to compete. Michael porter sees the two strategies as independent of each and in no way complementary (Porter, Competitive Advantage, 1985).
2.3.4 Focus Strategies

Focus strategies differ from Low-cost and differentiation in that while the latter two have a broad scope, while focus strategies target a narrow scope or one more segments of an entire market structure. Johnson and Scholes (2004, p. 328) refer to it as a strategy that “seeks to provide high perceived value justifying a substantial price premium, usually to a selected market segment”. Small companies, at least the better ones, usually thrive because they serve narrow market niches. This is usually called focus, the extent to which a business concentrates on a narrowly defined market (Pearce & Robinson, 1997).

A focus strategy is designed to gain competitive advantage in a segment rather than the entire industry. A focuser will choose one or more segments in an industry and design it strategy to only serve the identified segments. A focuser will forego all other segments for the select ones (Porter, Competitive Advantage, 1985). Focus strategies tend to apply either the Low-cost strategy or differentiation strategy on a small segment. The two strategies according to Porter are Low-cost focus strategy and differentiation focus strategy.

Johnson and Scholes (2002) however caution that focus strategies need to be monitored closely since the environment may change, thus eroding the advantage. For example, in today’s market, a company that previously focused solely on selling laptops as portable computers now faces broader competition with the advent of tablet PCs and high end smart phones. Tablets offer much of the same features and capabilities as laptops as far as productivity and mobility, thereby eating into what was previously a market only for laptops.
<table>
<thead>
<tr>
<th>Type of Feature</th>
<th>Low-Cost Leadership</th>
<th>Differentiation</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Target</td>
<td>A broad cross-section of the market.</td>
<td>A broad cross-section of the market.</td>
<td>A narrow market niche where buyer needs and preference are distinctively different from the rest of the market</td>
</tr>
<tr>
<td>Basis of competitive advantage</td>
<td>Loser costs than competitors</td>
<td>An ability to offer buyers something different from competitors</td>
<td>Loser cost in serving the niche or an ability to offer niche buyers something customized to their requirements and tastes</td>
</tr>
<tr>
<td>Product line</td>
<td>A good basic product with few frills (acceptable quality and limited selections)</td>
<td>Many product variations, wide selection, strong emphasis on the chosen differentiating features.</td>
<td>Customized to fit the specialized needs of the target segment.</td>
</tr>
<tr>
<td>Production emphasis</td>
<td>A continuous search for cost reduction without sacrificing acceptable quality and essential features</td>
<td>Invent ways to create value for buyers</td>
<td>Tailor-made for the niche</td>
</tr>
<tr>
<td>Marketing emphasis</td>
<td>Try to make a virtue out of the product features that lead to low cost</td>
<td>Build in whatever features buyers are willing to pay for.</td>
<td>Communicate the focuser’s unique ability to satisfy the buyer’s specialized requirements</td>
</tr>
<tr>
<td>Sustaining the strategy</td>
<td>Economical prices/good value, All elements of strategy aim at contributing to a sustainable cost advantage- the key is to manage costs down, year after year, in every area of the business</td>
<td>Communicate the points of difference in credible ways.</td>
<td>Remain totally dedicated to serving the niche better than other competitors; don’t blunt the firm’s image and efforts by entering other segments and adding other product categories to widen market appeal.</td>
</tr>
</tbody>
</table>

2.4 Sustainability

The stuck-in-the-middle strategy is evidence that choosing a strategy does not always yield great results. Each strategy has risks that come along with it, and hence the reason why a firm must choose a strategy. This means assessing the benefits and risks of the strategy, and consciously forgoing other strategies benefits in pursuit of one strategy’s benefits. Porter (1985) also notes that above-average performance is achieved when a strategy is sustainable compared to competitors.

Table 2.2 Risks of the Generic Strategies

<table>
<thead>
<tr>
<th>RISKS OF COST LEADERSHIP</th>
<th>RISKS OF DIFFERENTIATION</th>
<th>RISKS OF FOCUS</th>
</tr>
</thead>
</table>
| Cost leadership is not sustained  
  • Competitors imitate  
  • Technology changes  
  • Other bases for cost leadership erode | Differentiation is not sustained  
  • Competitors imitate  
  • Bases for differentiation become less important to buyers | The focus strategy is imitated  
  The target segment becomes structurally unattractive  
  • Structure erodes  
  • Demand disappears |
| Proximity in differentiation is lost | Cost proximity is lost | Broadly targeted competitors overwhelm the segment  
  • The segments differences from other segments narrow  
  • The advantages of a broad line increase |
| Cost focusers achieve even lower costs in segments | Differentiation focusers achieve even greater differentiation in segments | New focusers sub-segment the industry |


Table 2.2 lays out the risks related to each strategy that could affect its sustainability. The risks for low-cost strategies include changes in technologies, innovations, imitation and shift in buyer preferences. Heavy investments can make a firm inflexible to new technologies. Competitors can then easily gain an advantage over the once industry lead. For differentiation, imitation and consumer apathy to uniqueness can nullify a differentiation strategy (Thompson & Strickland, 1993).
Figure 2.2 The Building and Eroding of Competitive Advantage

Figure 2.2 illustrates how competitive advantage is built and eroded over time, usually during the lifespan of the source of competitive advantage, be it use of new technology or application of a unique business tactic.

2.5 Sources of competitive advantage (Value Chain and Competitive Advantage)

All the above strategies assume that an organization has resources within itself that would create the opportunity for an advantage. Attributes can include access to high value natural resources, low cost suppliers, unique skillsets among employees, or even access to new technologies. Manufacturing using robotics can lead to economies of scale, thus lower costs. Service delivery through information technology can also result in cost reductions or better customer experience, thus yield competitive advantage. Unique resources can include Patent and trademarks, larger customer base, trusted or strong brand and even unique know-how. These would need to be firm-specific or hard to acquire in order to sustain the advantage. George Bradt (2012), a contributor for Forbes.com argues that ‘Given enough time and money, your competitors can duplicate almost everything you’ve got working for you. They can
hire away some of your best people. They can reverse engineer your processes. The only thing they can’t duplicate is your culture.’ This statement implies that organization culture is also one of the capabilities that can lead to sustainable competitive advantage.

In introducing the Value chain perspective, Porter (1985) argues that Competitive advantage arises from the overall impact of its business activities, from design, through to production, marketing up to the point of supporting the product. Any one of these activities can lead to competitive advantage. This advantage may be achieved when a business can access raw materials and inputs at lower cost than competing firms. Additionally if the firm has access to lower labor costs, better production methods or a more efficiency distribution network, the advantage materializes. These value-creating activities form a system that includes external suppliers and distributors. Pearce and Robinson (1997) discuss this value-chain concept noting that relative to its competitors, a business must cost effectively achieve value chain activities including procurement, processing, marketing and support, in order to retain an competitive advantage.

These arguments presented therefore imply that a company’s competitive advantage strategy significantly relies on its internal resources and external resources and environment. Management can take advantage of one or more combinations of these resources to produce a product that is either significantly cheaper (price strategy), relatively cheaper (low price strategy), comparatively better (differentiation strategy), comparatively better and cheaper (hybrid strategy), or by far superior and high value (focus strategy). Studying and understanding these resources and factors is necessary to find resources that are hard to replicate e.g. Staff expertise, material sources, and technology advancements, which must remain difficult to replicate for the long run.
Porter (1985) breaks these resources down to two types. Support activities are those that are not a part of the end product, but create an enabling environment and Primary activities are those that actually add value or impact the final product. A firm with high overheads in its support activities and primary activities will easily lose the opportunity for cost leadership. A firm choosing a differentiation strategy may choose to pay more, in a bid to achieve a superior product.

**Figure 2.3 Generic Value Chain Diagram**

<table>
<thead>
<tr>
<th>FIRM INFRASTRUCTURE</th>
<th>HUMAN RESOURCE MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECHNOLOGY DEVELOPMENT</td>
<td></td>
</tr>
<tr>
<td>PROCUREMENT</td>
<td></td>
</tr>
<tr>
<td>INBOUND LOGISTICS</td>
<td>OPERATIONS</td>
</tr>
</tbody>
</table>

Figure 2.3 illustrates on the bottom segment of the figure, the Primary activities which result in the physical product. These include inbound logistics where inputs are received and handled, operations where inputs are transformed into outputs; outbound logistics where end product is distributed to buyers; marketing so that buyers can access the product and finally service or support for the product. The support activities on the other hand include processes necessary to procure the inputs, technology required for operations, the human resource to perform the activities, and firm infrastructure which includes management and process that support the entire structure (Porter, Competitive Advantage, 1985).
Saunders (1997, p. 99) in his analysis of competitive advantage states that “Success can be seen in ‘attaining a competitive position or series of competitive positions that lead to superior or sustainable financial performance…relative to the world’s best rivals’. Therefore a firm’s value chain must be fine-tuned for its specific competitive advantage strategy and competitive scope.

2.6 Information technology and strategy

Technology plays a key role in today’s business. One of the principal drivers of competition is technology. It can be used to erode competitive advantage of larger well established firms, and enabling even smaller firms to thrive and equalize or even lead the industry. When a technology has an impact on the industry structure or a firm’s competitive advantage it is important and valuable for competitions (Porter, Competitive Advantage, 1985).

Technology is not just about production or dissemination. Information can also be offered to customers as part and parcel of the product or service offered by the business. Such a product or service provided would be incomplete without the necessary information (Rowe, Mason, Dickel, Mann, & Mockler, 1994). Technology can provide the necessary bridge to providing customers information. (Rowe et al, 1994) also discuss the empowering impact of information technology, highlighting increased efficiency, leveraging of resources, cooperation between organizations, parity and first-mover advantage as ways in which information technology can lead to competitive advantage.

In summary, the Value Chain framework proposes that activities within a firm’s value chain can lead to competitive advantage, and that technology can be used both as an enabler, and multiplier of competitive advantage. This means that applying appropriate technologies can lead to a firm either reducing its costs of production,
thus yield a competitive advantage over similar firms or competitors. Similarly, such application of technology could also lead to differentiation of the firm’s product or service in the eyes of the consumer, resulting in consumers preferring to buy from the firm. This would lead to gaining or retaining new customers and thus a competitive advantage. Mobile applications are used in the outbound logistics segment of the value chain, and create a competitive advantage by enabling anywhere, anytime and convenient access to information and services by customers. The prediction is, therefore, that mobile applications can improve the customer experience, and increase retention in the face of competition thus creating a competitive advantage for the firm that applies these technologies.

Figure 2.4 Conceptual Framework: Relationship between mobile application features and customer retention

Figure 2.4 illustrates the objective of this research, which is to investigate the relationship or influence of the independent variables on the dependent variable as indicated by the arrows. The prediction is that the benefits of technology illustrated in green will have a direct impact or influence on the customer’s retention with the firm, hence the sustainable competitive advantage.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design applied to this research and the population of interest. It also discusses the data collection methods and tools, and data analysis techniques on data collected from the field.

3.2 Research Design

This research was an exploratory study that interrogated descriptive cross-sectional data collected from the field. The design adopted was a cross-sectional survey, and as such all sample measurements were collected at the same time. The choice of methodology was informed by KEMSA’s launch of the KEMSA e-Mobile application in July 2013, designed to enable its customers order through a mobile phone. This provided the researcher an opportunity to find out if mobile applications indeed provided any competitive advantage.

3.3 Target Population

The target population for this study was health facility workers who bore the responsibility for ordering essential commodities and supplies for their respective facilities. These were the individuals who on a day to day basis would interact with the KEMSA e-mobile application. Being a relatively new application, the roll out to a national scale had just begun, and thus very few facilities had fully adopted the use of the application. There was however a cluster of 10 health facilities in Nairobi County that had been trained intensely on the use of the application during KEMSA’s pilot roll out. This cluster of facilities had fully adopted the KEMSA e-mobile application, and therefore formed the purposive sample studied.

The distribution of the questionnaire targeted two respondents per facility. The respondents were the Nurse in-charge and the Pharmacist at the facility whose
responsibilities included ordering for supplies and commodities from KEMSA. In total we reached 20 respondents during the study.

3.4 Data collection

The data collection tool for primary data was a structured questionnaire that enabled quantitative analysis of data collected. The questions included categorical questions for straightforward questions, questions with ordered responses options, and rankings. These enabled numerical analysis and comparisons that were used to “describe the variability indifferent phenomena” (Saunders, Lewis, & Thornhill, 2003, p. 281).

The questionnaire had 16 questions, and was delivered to respondents through a drop and pick method. 10 of the questions primarily focused on respondent behavior and preference in relation to the topic, while the remaining six focused on general information in relation to the context of the study.

3.5 Data analysis

The study was a cross-sectional survey was aimed at describing the state of competitive advantage arising from KEMSA’s use of a mobile application, at the time of data collection. This was best done using descriptive statistics. That data collected was examined for correctness and validity and cleaned to ensure complete and accurate data.

Central tendency statistics were used for the primary analysis of data, specifically mode, to give commonality of responses. Percentages and proportions were then used to display this data, since majority of the questions were about behaviors or preference. The Likert scale was used to quantify two subjective questions, thus enabling quantitative analysis on those particular questions. For the questions that used a 5 point Likert scale, mean was used as the central tendency measure. Charts and graphs were then designed to give a visual representation of data.
CHAPTER FOUR
DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the analysis and findings of this study as set out in the research methodology. Based on the knowledge gaps identified in chapter two, and the literature review in the same chapter, the findings are presented to establish whether use of a mobile application yields competitive advantage through customer retention. All data presented was gathered through the use of the questionnaire, developed in line with the study’s objective.

The study targeted 10 health facilities, with two respondents from each facility, whose responsibilities include ordering and reporting consumption on behalf of the health facility. Being a small targeted group, 100% percent of the questionnaires were filled in and returned. In a normal context, it can be expected to receive less than 100% of responses for varying response. This can be attributed to the excitement around the ability to order for commodities from a mobile phone. A process that was previously, tedious, lengthy and with no guarantee that order forms would be received at KEMSA.

4.2 Data Analysis

The data collected from the field was collated together and coded in an excel spreadsheet in order to enable statistical analysis of the data. The primary method of viewing the data was through tallying and graphing the data. The graphs and pie charts provided important data to enable some conclusions to be made.
The data was further analyzed using the Pearson's Chi Square test of association in order to try and establish a relationship between responses to specific questions. They key associations tested were as follows:

1. Association between Ease of ordering and willingness to remain with KEMSA as a drug supplier
2. Association between improved quality of service and willingness to remain with KEMSA as a drug supplier
3. Association between ease of ordering and improved quality of service
4. Association between improved quality of service and choice of drug supplier.

### 4.3 Results

Several questions were designed to provide a baseline on the experience the respondents had with the use of mobile technologies. All respondents were found to have owned a phone for duration of at least 3 years, with an average of 7.2 years.

**Figure 4.1 Mobile Applications used by respondents**

![Mobile Applications used on phone](image)

Source: Research Data

Figure 4.1 shows that majority of users were found to be fairly comfortable with the use of mobile applications, notably, 60% of respondents had used data and internet technologies, and a respectable 75% use their phones to pay for utilities. 75% of
respondents also use their phone for mobile money transfer, further proving that the use of mobile technologies has taken root in Kenya. All respondents in the survey responded affirmatively to actively using mobile applications on their phones.

**Figure 4.2 Type of phone owned by respondent**

<table>
<thead>
<tr>
<th>Type of Phone Owned</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Internet Enabled</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>Smartphone</td>
<td>9</td>
<td>45%</td>
</tr>
</tbody>
</table>

Source: Research Data

Figure 4.2 shows the level of sophistication of phones owned by respondents, where 80% of respondents indicated that they owned phones capable of accessing the internet, with 35% of total respondents owning a modern smart phone.

**4.3.1 KEMSA e-Mobile**

KEMSA e-mobile was designed to make the ordering process more efficient and easier to use, while providing additional features to the users benefit. As a baseline, the study established that 60% of respondents indicated that they currently order medical supplies from other vendors besides KEMSA, with the remainder 40% relying on KEMSA to supply all drugs and commodities. 100% respondents confirmed having received training on the KEMSA e-mobile application which was expected, considering the application has just been rolled out and all users are being trained on using the system.
Figure 4.3 KEMSA e-Mobile features utilized by respondents

![KEMSA e-Mobile features utilized](image)

Source: Research Data

Figure 4.3 shows the responses to the question on what e-Mobile features the respondents had utilized. All users had utilized the ordering and reporting feature, as well as the drug query feature.

Figure 4.4 Chart of most useful KEMSA e-mobile feature

![Most useful KEMSA e-Mobile feature](image)

Source: Research Data

Figure 4.4 shows that the ability to order commodities and report consumption levels was found to be the most useful feature by 40% of respondents. This compliments the fact that KEMSA e-Mobile was designed to fill existing gaps in the ordering process.
Figure 4.5 Chart of most beneficial of the proposed features

![Figure 4.5 Chart of most beneficial of the proposed features](image)

**Most beneficial feature of KEMSA e-Mobile**

- Submit order and report instantly: 70%
- Query stocks at warehouse: 25%
- Query stocks at neighbouring facilities: 14%
- Report Corruption: 1%

Source: Research Data

Figure 4.5 show that 70% of respondents identified the ability to order and report instantly as most beneficial feature. This was consistent to the findings of question 9 which sought to establish the most useful feature. Of similar importance was the feature allowing users to query the status of an order which 35% of respondents found most useful. The ability to query drug stocks had consistent results at 25% in both question 9 and question 15.

Figure 4.6 Ease of ordering through KEMSA e-Mobile

![Figure 4.6 Ease of ordering through KEMSA e-Mobile](image)

Source: Research Data

Figure 4.6 show the responses with regard to ease of use of the KEMSA e-mobile application. The question was based on a likert scale where 1 was Hard, 2 was Not so Hard, 3 was Average, 4 was Fairly Easy and 5 was Very easy. 60% of respondents responded with average to fairly easy as indicated.
4.3.2 Mobile applications as a source of competitive advantage.

The study was designed to explore the potential relationship between the ease of use of a mobile application and the willingness to remain customers of KEMSA as a sign of loyalty. To do this we sought to first establish the factors that influence the choice of drug supplier most.

Figure 4.7 Factor that influences choice of drug supplier the most

![Factors influencing choice of drug supplier the most](image)

Source: Research Data

Figure 4.7 shows that the most important consideration when choosing a drug supplier was the efficiency of distribution, as selected by 40% of respondents. This was followed by ‘Government requirement’ at 30%. Ease of ordering was only considered as the most influential factor by 15% of respondents.

4.3.3 Competitive Advantage

When asked if a mobile application improved the quality of service received from KEMSA, 10 respondents responded with yes, representing exactly 50% of respondents. The study then sought to establish the willingness to continue ordering from KEMSA as a result of the newly introduced mobile application. The responses were collected based on a Likert Scale of 1 to 5 where 1=not at all and 5=Very much so.
Figure 4.8 Willingness to continue ordering from KEMSA as a result of mobile application

Figure 4.8 shows that while majority of respondents indicated 3 “No difference”, it is notable that the Mode and Median were 3, while the Mean was 3.12, showing a central tendency towards option 3 “no difference”.

Table 4.1 Pearson's Chi Square test of association between willingness to remain with KEMSA and ease of ordering

<table>
<thead>
<tr>
<th>Ease of Ordering</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obs</td>
<td>Exp</td>
<td>Obs</td>
<td>Exp</td>
<td>Obs</td>
</tr>
<tr>
<td>Remain with KEMSA</td>
<td>2.0</td>
<td>1</td>
<td>0.6</td>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>3.0</td>
<td>2</td>
<td>1.4</td>
<td>3</td>
<td>2.7</td>
<td>3</td>
</tr>
<tr>
<td>4.0</td>
<td>0</td>
<td>1.1</td>
<td>2</td>
<td>2.1</td>
<td>3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3</td>
<td>3.0</td>
<td>6</td>
<td>6.0</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: Research Data

Table 4.1 shows the results of a Pearson’s Chi Square Test of association to try and establish a relationship between the willingness to remain with KEMSA, and the ease of ordering. We established a p value 0.537, which is statistically insignificant, a Pearson’s Chi Square Statistic of 5.05, and Degrees of Freedom of 6.
Table 4.2 Pearson's Chi Square test of association between improved quality of service and willingness to remain with KEMSA

<table>
<thead>
<tr>
<th>Improved Quality of Service</th>
<th>Willingness to remain with KEMSA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Obs</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Research Data

Table 4.2 tabulates the observations from a Pearson’s Chi Square test to establish the possibility of a relationship between the improved quality of service and the willingness to remain with KEMSA as the drug. We established a p value of 0.319 which is statistically insignificant, a Pearson’s Chi Square Statistic of 2.2866 and with Degree of Freedom of 2.

Table 4.3 Pearson's Chi Square Test of association between improved quality of service and ease of ordering

<table>
<thead>
<tr>
<th>Improved Quality of Service</th>
<th>Ease of Ordering</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Obs</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Research Data

Table 4.3 tabulates the observations of a Pearson’s Chi Square test to explore the relationship between improved quality of service and ease of ordering on the KEMSA e-mobile service. We established a p Value of 0.912 which is very insignificant, a Pearson’s Chi Square Statistic of 0.533 and Degree of freedom of 3.
Table 4.4 Pearson's Chi Square test of association between improved quality of service and choice of drug supplier

<table>
<thead>
<tr>
<th></th>
<th>Choice of Drug Supplier</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Quality Service</td>
<td>No</td>
<td>1 1.5</td>
<td>8 4.0</td>
<td>1 3.0</td>
<td>0 1.5</td>
<td>10 10.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2 1.5</td>
<td>0 4.0</td>
<td>5 3.0</td>
<td>3 1.5</td>
<td>10 10.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>3 3.0</td>
<td>8 8.0</td>
<td>6 6.0</td>
<td>3 3.0</td>
<td>20 20.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Research Data

Table 4.4 presents the observations from a Pearson’s Chi Square test of association between improved quality of service and choice of drug supplier. The analysis found a p Value of 0.003 which is statistically significant, indicating that there exists an association between the two variables, a Pearson’s chi Square statistic of 14.0, and Degree of Freedom of 3.

4.4 Discussions

When tests of association were conducted on several variables, the only significant association identified was between improved quality of service and choice of drug supplier. From the data collected, we establish that the most important factor for respondents in choice of drug supplier was the efficiency in distribution. These same respondents also indicated not find any improvement in the quality of service offered by KEMSA. This would mean that the mobile application was not as important to the quality of service as the efficient delivery of commodities would be.

These findings are in line with theory behind Competitive Advantage, more so the Value Chain Theory. The theory suggests that for a company to gain competitive advantage it must seek to leverage and fine tune its processes for its specific competitive advantage and competitive scope. In the context of a distribution company, its logistical prowess and efficiency in distribution that is expected to be its
main source of competitive advantage. Therefore if all other processes are in place but the distribution process in not efficient, the potential competitive advantage is lost. It therefore seems that while the mobile application was meant to increase KEMSA’s competitiveness and create a sustainable competitive advantage, efficient distribution may be eroding these gains. Notably, the mobile application is not directed towards distribution, rather to the initial ordering process.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings of this study, conclusions arrived at or derived from the data, as well as limitations observed or experienced during this study. This chapter also provides recommendations and suggestions for further research based on limitations and environmental factors at the time of the study.

5.2 Summary of Findings

The objective of the study was to establish whether using mobile applications yields competitive advantage in the form of customer retention. The study found that a majority of respondents were well versed with use of mobile applications and had all been trained on the use of the KEMSA e-mobile application. All respondents had utilized specific features of the application including ordering and reporting and query of drug stocks, however none had utilized the Delivery confirmation feature. This is likely attributed to the fact that the study was conducted before a complete ordering cycle had taken place. The study also found that 40% of respondents considered efficient delivery as the most important factor in choice of supplier, and also indicated no perceived improvement in service delivery resulting from the use of the mobile application. 50% of respondents also indicated indifference in willingness to continue ordering from KEMSA as a result of the mobile application.

While the mobile application improves part of the overall experience for end users, its potential for competitive advantage is evidently being eroded by other factors in the value chain process, specifically the distribution process. This supports the value chain theory by illustrating the significant negative impact of one of the primary
production activities on the overall competitiveness. The Value chain theory emphasizes that all production activities both primary and secondary must be streamlined to achieve the greatest possible efficiency in order to achieve a sustainable competitive advantage.

5.3 Conclusion

From the study, it is possible to generalize that a mobile application does not necessarily yield a competitive advantage for KEMSA. This is primarily so because despite the application being fairly easy to use based on average response, there are other factors that influence the willingness to remain with KEMSA as a drug supplier. The two highest scoring influences were Efficiency in Distribution and Government. For facilities that are required by government to order drugs through KEMSA, the mobile phone was not seen to necessarily improve customer retention, since there was no alternative. On the other hand, those that felt efficiency of distribution is most critical were round to have registered no improvement in the quality of service received. It is then possible to draw the conclusion that the Mobile in application did not increase the likelihood of customers remaining with KEMSA when provided with other alternative suppliers.

Competitive advantage can arise from any of the business activities that a firm engages in. This is especially so where better production methods or more efficient distribution networks are put in place. The total sum of improvements contributes to the realization of a competitive advantage, and continuous improvements ensure a sustained competitive advantage. Similarly, the inefficiency of any one of these activities can negate the competitive advantage (Porter, 1985).
5.4 Limitations of the Study

The research process was not without challenges resulting in notable gaps in the outcome of the research. While the study could have been done to a larger scale, the process of rolling out the KEMSA e-mobile faced some delays, such that at the time the data was collected, the procurement process was only at the beginning. This meant that interviewees had not had a chance to utilize the mobile application to the end of the procurement cycle. As such several features of the application were not utilized and this could have influenced the respondent’s perspective further. Respondents also felt it was a bit premature to really give a clear opinion on the service.

The sample size studied was also fairly limited being less than one percent of the entire population of health facilities that are served by the Kenya Medical Supplies Authority (KEMSA). As such, while the behavior of the individuals may be replicable and generalized across the entire population, a larger sample size would give a clearer picture, more so after having utilized the mobile application for a significant period of time.

The study was also limited to a cluster of health facilities within easy reach from Nairobi city for ease of movement and data collection. This however may not be representative of the general experience of procuring from KEMSA. It may be that respondents from distant locations would have a different view of the e-mobile procurement process. KEMSA e-mobile was designed specifically to provide ease of access to electronic ordering and reporting for remote facilities with limitations in access of roads and power and computers, unlike their Nairobi counterparts.

The study also faced a limitation in time. Being performed a few months to the deadline of submission of the findings meant that the sample of the population had to
be minimal and very purposive. If there was more time the sample would have been increased and made more random in order to reach more diverse respondents in order to be more representative of the population.

5.5 Recommendations

This study established that while mobile application increase the willingness for respondents to continue ordering from KEMSA, other supply chain factors played a significant role in the reducing the overall positive impact of mobile applications. The association between respondents who did not think that the mobile application increased the quality of service, and those who felt that efficiency in distribution was the most important factor in choosing a supplier, indicates to us that the entire supply chain process must be efficient in order to realize a competitive advantage.

Based on these findings, this study recommends an overall review of the supply chain process within KEMSA in order to boost the expected competitive advantage from the use of Mobile applications. As such, if efficiency of distribution was at par between two competitors in the industry, a mobile application for ordering would be expected to yield a sustainable competitive advantage. However if the distribution is not efficient, it is observed that this advantage is fast be eroded.

5.6 Implications for Theory, Policy and Practice

For the Government of Kenya, the study recommends significant review and consideration of service delivery channels in order to improve efficiency before deploying supporting technology such as mobile applications. This is because the efficiency of service delivery was found to be the most significant factor in choice of service provider. Therefore mobile applications would only be beneficial where distribution channels are well streamlined, and do not affect quality of service.
For Donor agencies that support the health sector in Kenya, this study shows that service delivery mechanisms can have great impact on the overall perception on quality of service. While mobile applications have capacity to improve quality of service through access to information, strengthening of service delivery channels is more beneficial, and improves impact of mobile applications.

5.7 Suggestions for further study

The recommendations for further study are primarily based on key environmental factors observed during the study. First and foremost, the limited sample size even within Nairobi creates an opportunity for this study to be performed again with a larger sample size, and preferably a more random sampling. Where funds and time permits, the study can also be performed with a sample from the 47 counties in Kenya. This would result in findings that are more representative of the population.

With the use of technology, it may be possible to study the entire population by conducting a mobile phone based survey of all users of the system, thereby making the findings more complete and representative.

Secondly, the time context of this study leaves room for many more studies to take place. The study was performed at the very onset of the roll out of the mobile application. It is therefore recommended to perform this same study after significant amount of time has passed in order for the system to be well utilized by respondents, and to allow for the use of KEMSA records and data as a secondary source of data to establish the competitive advantage. The time would also allow for KEMSA to reach more of its customers with the KEMSA e-Mobile training, thus broadening the population of e-Mobile users, and as such, the respondents. The passage of time would also result in a more competitive environment with more players with mobile
applications for ordering and reporting, and as such establish more firmly the competitive advantage arising from use of mobile applications.

Thirdly, the changing landscape of the health sector with devolution in high gear is reason to conduct this study again. At the time of the study, the Kenya government was beginning the process of devolution, and as such the health sector had not yet devolved. Procurement of drugs for public health facilities was still centrally managed and straightforward, with the bulk of purchases automatically directed at KEMSA. As such, many facilities did not have much choice of suppliers. However the devolution of health services is expected to take the decision making process from central government, to county government health management teams. Counties are expected to have more say on what to prioritize in the health sector and competitively source for essential supplies. As such, the landscape will change significantly for KEMSA and conducting this study will further establish what competitive advantage a mobile applications yields for KEMSA.
REFERENCES


APPENDICES
Appendix I: Questionnaire

USE OF MOBILE APPLICATIONS TO GAIN SUSTAINABLE COMPETITIVE ADVANTAGE

NB: The information provided will be treated confidentially and will purely be used for academic purposes.

General Information:
1. Type of Phone owned?
   a. Basic Phone  b. Internet enable phone  c. Smartphone

2. Number of years you have owned a phone: ___________

3. What drugs are you responsible for ordering (tick those that apply)?
   a. Essential Medicines and Medical Supplies
   b. ARV
   c. Malaria
   d. HIV Test Kits
   e. TB & Leprosy
   f. Nutrition
   g. Family planning

4. Do you purchase drugs or supplies from an alternate source other than KEMSA?
   a. Yes  b. No

5. Have you been trained on use of the KEMSA e-mobile application?
   a. Yes  b. No

6. Do you currently use any other mobile applications e.g. for banking, paying bills, money transfer?
   a. Yes  b. No

7. What services do you use on your mobile phone?
   a. Calling
   b. SMS
   c. Data/Internet
   d. Social Media
   e. Pay utility bills
   f. Purchase goods and services
   g. Money transfer services
   h. Mobile banking services
   i. Other

8. What features of the KEMSA e-mobile application have you used?
   a. Order and Reporting
   b. Drug query
   c. Order Status
   d. Delivery confirmation
9. Which feature of the KEMSA e-mobile application do you think is the most useful?
   a. Order and Reporting
   b. Drug query
   c. Order Status
   d. Delivery confirmation
   e. General feedback

10. Has using the mobile application improved the quality of service received from KEMSA?
    a. Yes.  b. No.

11. Which of these factors influences your choice of drug supplier the most?
    a. Price of commodities
    b. Efficiency in distribution
    c. Ease of ordering
    d. Government requirement

12. Does availability of a mobile application for ordering makes you want to order from KEMSA as compared to another supplier.
    [ ] 1 Not at all  [ ] 2 Not really [ ] 3 No difference [ ] 4 Somewhat  [ ] 5 Very much so

13. Indicate below, the ease of ordering medical supplies through a mobile application.
    [ ] 1 Hard  [ ] 2 Not so Hard [ ] 3 Average [ ] 4 Fairly easy  [ ] 5 Very easy

14. Which of the suppliers below is favorable?
    a. Supplier with a mobile application for ordering
    b. Supplier with manual order form

15. Of the proposed benefits of the KEMSA e-mobile application which one is most beneficial?
    a. Ability to submit orders and reports instantly
    b. Ability to query stocks at the warehouse
    c. Ability to query stocks at neighboring facilities
    d. Ability to report corruption

16. Do other suppliers offer a mobile means to order supplies?
    1. Yes.   2. No.
Appendix II: Letter to request authorization to conduct study

Willie Ngumi
P.O. Box 13739 Nairobi 00100
Tel: +254 721 397788

CEO
Kenya Medical Supplies Agency
P.O. Box 47715 00100
Nairobi

19 August 2013

Dear Sir,

RE: Request to perform an academic research project within KEMSA

I am a University of Nairobi Student, pursuing a Master’s Degree in Strategic Management, and kindly seek authorization to conduct a study on the “Use of mobile applications to gain sustainable competitive advantage at the Kenya Medical Supplies Authority (KEMSA)”. The research would entail interviewing a sample of your customers, to establish whether the mobile application increases their willingness to order from KEMSA, hence a competitive advantage for KEMSA.

The benefit to KEMSA of this study is to establish if the investment in a mobile application increases competitiveness, and what other factors may affect competitiveness.

I will be happy to share the outcome and insights of the study with KEMSA, to add value to your organization.

Kind Regards

Willie Gichora Ngumi
Appendix III: Letter of Introduction from University of Nairobi

UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
MBA PROGRAMME

DATE: 19/AUG/2013

TO WHOM IT MAY CONCERN

The bearer of this letter, **WILLIE GICHORA NGUMI**, Registration No. **061/P/7036/2003**, is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University. He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.

PATRICK NYABUTO
MBA ADMINISTRATOR
SCHOOL OF BUSINESS

[Stamp: 19 AUG 2013]
Appendix IV: Letter of Authorization from Kenya Medical Supplies Authority

KENYA MEDICAL SUPPLIES AUTHORITY

When replying please quote our ref:

KEMSA/ADM/ICT/13/9

25th September, 2013

Willie Ngumi
Mhealth Kenya/CDC Foundation

Dear Willie,

RE: REQUEST TO CONDUCT A RESEARCH ON THE STRATEGIC ADVANTAGE OF MOBILE APPLICATIONS AT KEMSA

Thank you for your interest in studying the impact of our recently launched KEMSA e-mobile application. Your request is hereby approved, and authorization granted to communicate with our customers involved in the pilot roll out stage.

Kindly liaise with Dr Cecilia Wanjala in Customer Service department and Mr. Samuel Wataku in ICT Department to help you establish contact with our customers.

KEMSA would highly appreciate if you share an executive summary of the findings of this academic exercise when concluded, for our benefit.

Thank you.

Yours faithfully,

DR JOHN MUNYU, MBS
CHIEF EXECUTIVE OFFICER

Cc: Mr. Philip Omondi
    Director Finance and Adm.