

**OPERATIONS STRATEGIES USED IN MOBILE BANKING: THE CASE OF
M-PESA SERVICE BY SAFARICOM LIMITED**

BY

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DECLARATION

This management research project is my original work and has not been presented for examination in any other university.

Signed..........

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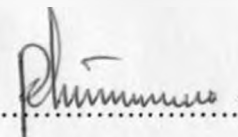
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This management research project has been submitted for examination with my approval as university supervisor.

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DEDICATION

To the lovers of innovation

ABSTRACT

Since the introduction of M-pesa in Kenya, those registering for the service currently averages 10,000 per day. This service has been a threat to the mainstream banking industry in Kenya too. With its success story, it is important to establish the operational factors influencing its success. The study sought to establish the operational strategies used in mobile banking in Kenya with a specific reference on Safaricom's M-Pesa service.

This was an embedded case study. The target population for the study was 15 Safaricom company managers as well as 4200M-Pesa agents across Nairobi. A sample of three managers and 41 agents was selected. The primary data was collected using interview guides and questionnaires. The collected data was analyzed using qualitative as well as quantitative methods.

The study found that the challenges were unreasonable commissions (mean = 3.03, SD = 1.04537), and flexibility (mean = 2.9412, SD = 1.43424). The study concludes that Safaricom uses three distinct strategies: defensive, offensive, and innovation as operations strategies. The study recommends that the company should consider competing as a low cost leader in order to capitalise on the market share it has currently. The study recommends that the company should be more aggressive now that the market is not a monopoly as before. More partnerships with commercial banks need to be entered into so as to increase the accessibility of floats for use by M-Pesa agents as sometimes the customers are not served because of float issues.

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CHAPTER ONE

INTRODUCTION

1.1 Background

As defined by Kim and Lee (1993), operations strategy is the effective use of production capability and technology for achieving business and corporate goals. These goals are espoused by Meredith (1992) as including, innovations, profit, customizations, product reliability, quality, product flexibility, response, delivery reliability and after sales service.

Recent research in strategy and technology management has provided innovation dimensions that form the basis for integrating innovation with other competitive priorities. For instance, Benner and Tushman (2003) classify innovation into two dimensions: proximity to current technology trajectory; and proximity to market. Benner and Tushman (2003) define an innovation's proximity to current technology trajectory in terms of its proximity to existing practices. They also define an innovation's proximity to market as proximity ranging from existing customer requirements to radically new requirements of totally new or emergent markets.

Strategic choices also determine the content of operations strategies. Nair and Boulton (2008) agree that these strategic decisions involve resource allocations for facilities and fixed assets, business focus, organizational structures, product design and engineering developments, supporting infrastructure, and planning and control processes. Further, Boyer (1998) reiterates that the development of competitive capabilities derives from the strategic choices in architecture and related infrastructures required to support a firm's competitive priorities.

1.1.1 Operations Strategies

According to Flynn and Flynn (2004) an operations strategy consists of a sequence of decisions that, over time, enables a business unit to achieve a desired operations structure, infrastructure, and set of specific capabilities in support of the competitive priorities. It seems that the M-pesa money transfer service has its origin in the operations strategy that Safaricom has put in place for the business segment. Given that the M-pesa service competes with other services in the industry such as Zap and Postapay, it can be conceptualized that Safaricom has put in place some operational strategies that deal with competitive priorities and strategic choices. As Flynn and Flynn (2004) reiterate, competitive priorities are the planned or intended goals that guide strategic actions and resource allocation decisions.

Nair and Boulton (2008) assert that competitive priorities require supporting strategies and capabilities, which evolve into a firm's actual competitive strength, relative to its primary competitors in its targeted markets. According to Miller and Roth (1994), operations strategy can be evaluated in terms of its relative performance on the competitive priorities of low cost, quality, delivery and flexibility. Innovativeness was also introduced as another competitive strategy by Leong et al. (1990). Flynn and Flynn (2004), defined low cost competitive priority as the goal of making and delivering products to customers cheaply. This requires efficiency in operations.

Nair and Boulton (2008) also reiterate the multiple dimensions in which quality has been conceptualized. Earlier, Garvin (1987) presented eight dimensions of quality. These have been espoused by Nair and Boulton (2008) as performance quality, product features, reliability, conformance quality, durability, serviceability, aesthetics and perceived quality.

According to Nair (2005), delivery is conceptualized as delivery dependability and delivery speed. Sawhney (2006) has recently reviewed flexibility in terms of flexibility in inputs, processes, and outputs.

According to Leong et al (1990), competitive priorities are accomplished through supporting structural and infrastructural decisions. Boyer (1998) asserts that structural decisions include investments in capacity, facilities, technology, and decisions regarding sourcing/vertical integration. Further, Boyer (1998) defines infrastructural decisions as organizational policies and practices pertaining to workforce, production and service.

Strategic pillars are the basis for strategic choices. Such choices include product categories, geographical areas, core technologies, product design and supply chain; licensing agreements, joint ventures, acquisitions and/or internal development; distinguishing features; economic logic; and staging of actions (Hambrick and Fredrickson, 2001).

1.1.2 Mobile Banking

Consumer adoption of mobile banking has been studied from various angles. For instance, Howcroft et al., (2002) studied consumer consumers' usage, attitudes and behaviours towards online and mobile banking focusing on the socio-economic/demographic factors. Barczak et al (1997) studied consumer motives and acceptance of techno-based banking services. Aladwani (2001) have studied this from consumer perceptions and expectations of service quality to measuring consumer satisfaction/dissatisfaction. Lastly, Machauer and Morgner (2001) have studied benefits sought and consumers' attitudes towards online banking. Consumers' attitudes and motives have been widely researched. According to Akinci et al.

(2004) consumer attitudes are among the fundamental factors influencing consumer buying behaviour.

There has been rapid spread of mobile phones across the third world countries such as Kenya. Most of the new mobile users, however, live in cash economies without access to financial services (Medhi et al, 2009). As Porteous (2006) points out, there are more people with mobile handsets than with bank accounts in developing nations. Thus, initiatives have come up through the use of mobile phones to provide financial services to the unbanked. These services take various forms such as long-distance remittances, micropayments, and informal airtime bartering schemes (Medhi at al, 2009). These services go by various names including mobile banking, mobile transfers, and mobile payments. These services have been taken up in countries such as the Philippines, South Africa, and Kenya.

1.1.3 Safaricom Ltd and M-pesa Service

Kenya's largest mobile network operator, Safaricom launched M-PESA in March 2007, an innovative payment service for the unbanked. Within the first month Safaricom had registered over 20,000 M-PESA customers, well ahead of the targeted business plan. This rapid take-up was a clear sign that M-PESA was filling up a gap in the market. M-PESA is a Safaricom service allowing one to transfer money using a mobile phone. Kenya is the first country in the world to use this service.

An M-PESA customer can use his or her mobile phone to move money quickly, securely, and across great distances, directly to another mobile phone user. The customer does not need to have a bank account, but registers with Safaricom for an M-PESA account.

Customers turn cash into e-money at Safaricom dealers, and then follow simple instructions on their phones to make payments through their M-PESA accounts; the system provides money transfers as banks do in the developed world. The account is very secure, PIN-protected, and supported with a 24/7 service provided by Safaricom and Vodafone Group (Hughes and Lonie, 2007).

1.2 Statement of the Problem

Rapid advances in the capabilities of information technology coupled with the decreasing costs of implementation and use present the business community with the potential to alter the fundamental methods by which business is conducted (Curan and Meuter, 2005). Since the introduction of M-pesa in Kenya, those registering for the service currently averages 10,000 per day (Safaricom, 2009). The amounts transacted per day average KShs 9 million per day according to the company management (Safaricom, 2009). Even with other electronic money transfer services such as Sokotele, PostaPay, and Western Union, M-pesa seems to be unrivaled in the market. This service has been a threat to the mainstream banking industry in Kenya too. With its success story, it is important to establish the operational factors influencing its success.

Studies on operations strategy are scarce and concentrate on different organisations and services. For instance, Nyamwange (2001) focused on operations strategies applied in large Kenyan manufacturing firms. Makori (2002) did strategic performance measurement within an operations strategy context. More recently, Mbugua (2005) focused on export farmers while Richu (2005) focused on private security firms. Another study by Okeri (2006) focused

on Kenya Power and Lighting Company. Ontunya (2006) studies the consumer adoption of mobile phone banking in Kenya. The study focused on the factors that led consumers to adopt mobile phone banking services. Mwongela (2007) studied the perception of personal banking customers on the telephone banking services provided by commercial banks in Kenya. Thus, it is clear from the above studies that prior studies have mainly focused on mobile phone banking services provided by the commercial banks.

Although the studies shown above have been done on mobile phone banking and on operations strategy, none has been done on operational strategies that have necessitated the performance of M-pesa in Kenya. This constitutes a gap in literature that the present study sought to bridge. Attacking this issue from an operational point of view, the study sought to answer the following question: what operations strategies have influenced consumer adoption of M-pesa in Kenya?

1.3 Objectives of the Study

The study sought to establish the operational strategies used in mobile banking in Kenya with a specific reference on Safaricom's M-pesa service. Specifically, the study sought to:

- i. To determine the operations strategies adopted for M-pesa by Safaricom Ltd.
- ii. To establish some of the challenges facing Safaricom Ltd's M-pesa service.

1.4 Importance of the Study

This study will be invaluable to the management of Safaricom Company as it will be able to identify those areas that have been a plus to the M-pesa service as well as those areas that may need more input in order to make the service be adopted even further.

Other firms wishing to introduce such money transfer services or mobile banking services in Kenya and the developing world will find this study an invaluable source of information on what operational factors they need to emphasize on in order for their mobile banking services to be successful.

Scholars and academicians will also find this study and invaluable source of reference material for future studies in the area as well as for discussions in the field of management.

CHAPTER TWO

LITERATURE REVIEW

2.1 The Concept of Strategy

According to Munive-Hernandez et al. (2004), strategy is defined as the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole. It is a well-formulated strategy which helps to marshal and allocate an organisation's resources into a unique and viable posture based on its relative internal competencies and weaknesses, anticipated changes in environment, and contingent moves by intelligent opponents. This is the definition that is adopted in the present study.

Businesses must formulate a competitive strategy. Competitive strategy, as defined by Slack et al. (1982) is positioning a business to maximise the value of the capabilities that distinguish it from its competitors. Further, three generic competitive strategies were identified by Porter (1982) as cost leadership, differentiation, and focus. Effective strategic management is essential for organisations to cope with increasing competition and business complexity (Munive-Hernandez et al., 2004).

There are two schools of thought on strategy formulation. These are the design, rational or deliberate, school; and the learning, incremental or emergent, school (Munive-Hernandez, 2004). According to rationalists, strategy should be deliberate while incrementalists, on the other hand, are of the idea that strategy can only be emergent. Porter was the first supporter of the rational school who had the view that a firm could gain competitive advantage by its strategic positioning (Munive-Hernandez et al., 2004). Munive-Hernandez et al. (2004) aptly put it that business strategies need to be consistently re-defined to effectively reflect the

different requirements of customers and to respond to changes in the business environment such as the growing local and international competition.

2.2 Operations Strategy

According to Martin and Diaz (2008) any industrial organisation can grant strategic importance to the operations function through development of a functional operations strategy in accordance with an organisational competitive strategy. Diaz and Martin (2004) reiterated that a literature synthesis on functional strategy helps define policies in operations with the purpose of gaining a sustainable advantage over competitors. Further, Martin and Diaz (2008) observed two basic elements that shape the contents of operations strategy: competitive priorities and operations decisions or policies. Key decisions can be categorized based into two groups: structural and infrastructural decisions.

Sum et al, (2004) developed taxonomy of operations strategies based on the operational performance of high performing SMEs in Singapore. The study found that the three strategic clusters that were formed competed on different combinations of operations priorities. The results showed that efficient innovators excelled in innovation-related priorities as well as in cost. It was noted that differentiators competed on quality, flexibility and delivery but at the expense of high cost. All-rounders, while offering good operational balance, did not possess any distinctive operational advantage. It was also noted that all-rounders seemed to rely on marketing rather than operations for competitive advantage. Efficient innovators reported the best overall financial performance. These results imply that companies such as Safaricom can compete based on operations strategies.

According to Lawson and Burgess (2003), there are various current empirical research findings that have suggested that organisations employ a number of operations strategies. These strategies can be given a unique emphasis reflecting their individual situation. Lawson and Burgess (2003) have offered evidence that operation strategies can be applied to an e-business domain. Further, their adoption can provide an organisation with the ability to improve its value offering, increase quality and customer service levels, and drive continuous improvement initiatives. They suggest, through various research findings, that a firm can employ a number of operations strategies, and that they each possess certain core building blocks. Further, when properly combined, these strategies can be customized to a particular situation and offer substantial benefits for an organisation in driving e-business best practices. Given that the product of focus in this study, the M-pesa, is an e-business, the operations strategies suggested by Lawson (2001a) and (2001b) are appropriate for Safaricom.

2.3 Typologies of operations strategy

This section discusses the current state of the research on operations strategy configurations. Stobaugh and Telesio (1983) performed an analysis of 100 companies that operated in an international framework. The study used competitive priorities as the grouping criterion. The study proposed an analysis using three strategies: technology-driven strategies, marketing-intensive strategy and low-cost strategy. Dimensions regarding the decision to establish installations abroad as well as those regarding technology management were analyzed. In defining these strategies, no classification variables were explicitly included. Rather, the

study included only certain dimensions that facilitate the location decisions and technology management. Martin and Diaz (2008) concluded that these strategies represent a typology of product strategies.

Hill (1989) established multiple production system that makes it possible to achieve a fit between the requirements of the market and the production function. Further, Richardson et al. (1985) characterized and evaluated the strategic choices in production in Canadian Electronics Industry. The study analyzed a typology of operations strategies and their relationship with the company's profitability. This was done in order to describe the adjustment between the manufacturing tasks, the corporate mission and profitability. The study identified and proposed six categories of factories based on technology, the market costs according to production volume, variety of products, and degree of innovation.

A further synthesis by Wheelwright and Hayes (1985) identified multiple types of roles that the production function can perform in every firm. They argued that the production function has undergone an evolution such that it is considered a functional area of strategic importance and an essential competitive weapon in any organisation. The study identified four consecutive stages. These strategies were categorized as internally neutral, externally neutral, internally supportive, and externally supportive.

A conceptual framework was developed by Kotha and Orne (1989) to link manufacturing to business unit strategy at the strategic business unit level. Porter's (1980) competitive strategies model was applied to the production structure through three dimensions namely the complexity of the product line offered, the complexity of the production process, and the organizational scope. This study came up with eight production strategies. According to

Martin and Diaz (2008), this conceptual synthesis is very useful in the research on production strategies typologies.

Miller and Roth (1994) did a study on 188 American firms in order to define taxonomy of operations strategies. The study focused on the operations competitive priorities set by companies during a certain time as well as on the commitment of resources that companies devote to such priorities. The study identified three types of operations strategies as caretakers, marketeers, and innovators.

In a study similar to Miller and Roth (1994) on American companies, De Meyer (1992) studied 184 European companies and identified three generic typologies of manufacturing strategies. These were identified as the manufacturing innovators, high performance products, and marketing-oriented strategy.

Following Akhtar and Tabucanon's (1993) study, it was suggested that that a company can be either minimum-cost manufacturer, or a maximum quality manufacturer, or a highly-differentiated products manufacturer. These competitive advantages force an organization to adopt a particular operations strategy. The study therefore identified three types of operations strategy as aggressive, defensive, and innovators.

In the analysis of the relationship between various typed of production systems and production strategy, Kim and Lee (1993) developed a typology of operations strategies based on the Porter's (1980) business strategies dimensions of cost leadership and differentiation. Kim and Lee (1993) asserted that productive systems are important in identifying technological aspects of a company as well as in defining a company's operations strategy.

Kim and Lee (1993) identified three types of generic operations strategies. These were pure cost leadership, pure differentiation, and cost and differentiation strategy.

Similar to Kim and Lee's (1993) proposals, Ward et al. (1996) suggested a model to analyze the competitive advantage achieved from operations function. Ward et al. (1996) integrated the competitive strategy and the operations strategy into the analytical model. The study described the operations organization using various dimensions viz the competitive strategy, environment, organisation structure, competitive priorities, and operations decisions. From the study, four strategy configurations were identified as niche differentiators, broad market differentiators, cost leadership, and lean competitors.

In another study by Montagno et al. (1995), the level of use of certain technologies and the importance granted to the operations strategies was studied. The study incorporated 18 structural and infrastructural variables characterizing the operations strategies implemented by the companies that constituted the study population. It was noted that from the 18 variables, just-in-time and total quality management were the most often used practices by the American companies within the study.

In two studies, Sweeney and Szwejczewski (1996, 2000) sought to prove whether the operations strategy taxonomy proposed by researchers such as Miller and Roth (1994) and De Meyer (1992) were useful to describe and classify the operations strategies used in UK industry in the engineering and electronics sectors. The studies revealed the existence of four generic operations strategies. These strategies were variant producers, innovators, mass producers, and mass customisers. These results were therefore similar to the earlier studies as

quality was identified as being the common priority in the four types of generic operations strategies identified.

In a study by Avella-Camarero et al. (1999), two operations strategies were theoretically described. The study obtained, from the empirical perspective, a classification of large industrial companies in Spain. The study found that flexible manufacturers focus on the market. These firms care mainly about technological development and making continuous innovations. The study also found that low-cost manufacturers produce a reduced range of products without deficiencies. Lastly, the study found that delivery centered manufacturers try to respond quickly to the customer's requests thus grant priority to service and reliability in delivery.

Taxonomy of small manufacturers was proposed in a study by Kathuria (2000). The study used data from 196 small companies. The study was based on the emphasis given to several competitive priorities such as cost, flexibility, quality, and delivery. The study identified four groups that followed different operations strategies. It was found that starters showed little interest in the four competitive priorities. It was also found that efficient conformers emphasized quality and cost equally. It was also noted that speedy conformers treat quality and delivery equally. The last group of companies, do all, were found to focus on all the priorities, granting a similar importance to all of them.

In another study on small businesses, Sum et al. (2004) sought to define taxonomy of operations strategies in small and medium-sized companies in Singapore from various sectors. Their classification variable measured the competitive priorities focusing on cost,

quality, flexibility, and delivery. The study therefore identified three operations strategies. These strategies were all-rounders; efficient innovators, and differentiators.

In a study by Díaz and Martín (2004) using data on 353 Spanish industrial companies from different sectors, the study identified two operations strategies. The study referred to the first group as the excellence-searching manufacturers. These companies obtained a greater competitive strength for the set of competitive priorities that had been considered. The second group was referred to as manufacturers centered on quality and delivery. These obtained better average outcomes in quality and delivery.

Christiansen et al. (2003) studied Danish companies and divided the sample of 63 into four strategic groups with each representing a distinct manufacturing strategy. These companies were grouped into low price, quality deliverers, speedy deliverers, and aesthetic designers. These strategic groups were then used to investigate the relationship with the implementation of manufacturing practices such as just-in-time and total quality management.

2.4 Service Strategy Dimensions

According to Cho (2005), the choice of competitive priorities and fit of operation system design are core elements for operations strategy. The author also opined that operations strategies need to be established in line with business strategies. Roth and Miller (1992) also added that the operation system design must be congruent to operations strategy in order to obtain superior performance. Skinner (1969) stated that operations strategies are related to the selection of competitive priorities such as cost, quality, time, and flexibility. Other

competitive priorities were added by Giffi et al., (1990) as innovation and customer service. Further, Hill (1980) has added customer needs as one of the competitive priorities.

The product-process matrix is considered to be the dominant paradigm for strategic insight. Hayes and Wheelwright (1979) asserted that the matrix deals with the relationship of product volume and process choices matches with competitiveness in manufacturing. Boyer et al. (2002) reported that researchers are of the opinion that manufacturing process choices in the product-process matrix need to be replaced with delivery process choices, and that the product dimension should reflect other diverse characteristics, and volume potential.

Further, Roth (2001) proposed a P3 service design matrix of product-process-proximity. Roth (2001) suggested three strategic design choices in electronic commerce as product offering characteristics; level of automation in the delivery process; and the place (or relative physical proximity of customers and providers). According to Bowen and Younghal (1998), service industries can pursue process, service or customer-oriented operations strategies.

Table I shows the influence of service strategy dimensions on the three basic service strategies. The type of operations layout directly influences the way operations are configured in the service-delivery process (Aranda, 2002).

PUSH/PULL orientation of the process determines the production philosophy of the service delivery. According to Desatnik (1994), the degree of service standardization refers to the extent to which task procedures are pre-established. IT can be used in order to reduce costs while IT investments can be made for final service improvement. As noted by Aranda (2002), causal ambiguity around technological competencies can help firms to achieve superior performance. The author noted that the relationship between front and back office

activities refers to physical location as well as to workforce information exchange. The author also noted that the degree of workforce specialization intends to determine personnel versatility when accomplishing various and different activities. The author further notes that the degree of customer contact and participation relates to the level of interaction between customer and service-delivery process. Further, the author noted that the intensity of design and development of new services refers to whether or not the firm sets new service delivery procedures through new tasks organizations and investments in specific resource.

Table 1: Types of Strategy Dimensions and Suggested Measures

Dimension	Process oriented	Customer oriented	Service oriented
I	Process layout- service process activities are mainly sequential. Service location is usually not movable. Main process goal is space optimization. Workforce is highly specialized	Product (service) layout. Service delivery tasks are neither sequential nor fixed located. Task allocation is flexible.	Layout is hybrid, although usually process oriented. Service delivery tasks tend to be sequential, though task variability leads to a significant degree of customization through changes in location.
II	High investments in capacity satisfy large demands supported by strong marketing efforts. Process is push oriented.	Service-delivery process is pull oriented. Customer satisfaction drives service-delivery process.	Operations are pull oriented. Process capacity tends to be low. Only small demands can be satisfied.
III	Most activities are standardized. There is one or few ways to achieve service delivery tasks. Task variability is to be minimized. Work procedures are to be established.	Most service delivery activities are customized. There are few pre-established procedures to develop service delivery tasks.	Most process activities are customized, although customization range is small. There are many different ways to accomplish tasks. Pre-defined general procedures drive service delivery.
IV	Range of different service offered in short and services are usually closely related.	Differentiation of services provided is high. Every service delivery can be considered as unique.	There are few different offered services, being all of them closely related. Diversification is low.
V	New technologies investments are accomplished in order to reduce costs. Workforce tends to be replaced by technology.	Use and investment in new technologies has as the main goal to increase customer satisfaction.	Use and investment in new technologies tends to balance cost reduction and customization.
VI	Back and front office activities are physically separated in order to increase efficiency.	Back and front office activities are physically integrated by sharing	Back and front office activities tend to be physically separated although they share personnel.

		personnel. Customer gets online information about service delivery.	Such separation is usually due to space optimization.
VII	Workforce is highly specialized. Versatility is low. Every worker accomplishes one of few very specific tasks.	Personnel is not highly specialized but trained for versatility. Anybody must be able to develop any task totally or partially.	Personnel are very specialized. However, they are trained for versatility and fast adaptation to organisational and technology change.
VIII	Low customer contact. Customer participates in the service process only to reduce costs for the firm	High degree of customer contact in order to customize service.	Degree of customer contact is high. Customer participation in service-delivery process is high in order to customize service.
IX	Design and development of new services and processes is not strongly supported.	High intensity in design and development of new service. New services and processes are being developed continually.	Low intensity in design and development of new services and processes.

Source: Aranda, D.A. (2002) Relationship between operations strategy and size in engineering consulting firms, **International Journal of Service Industry Management**, Vol. 13, No. 3, pp. 263-285

2.5 Flexibility

According to Gerwin (1993), the challenge to achieving a flexible operations system comes up when one focuses on managing the different dimensions of flexibility. This is because flexibility is not accumulative. As Chambers (1992) reiterated, since changes in flexibility are strategic, they not only need to involve process engineers but also production and business managers. Gerwin (1993) further points out that operations strategy determines the level of uncertainty to be supported by the service delivery system by adapting the different flexibility dimensions to environmental changes.

In service industries, customer interaction and customization imply a high degree of flexibility (Aranda, 2002). Further, Vandermerve (1992) points out that customers are nowadays more demanding for integral services provided by the same firm. Chiu and Chen (2005) suggested that electronic data interchange (EDI) and information technologies (IT) provide of new market opportunities for service firm without high-flexibility investment efforts.

According to Davis and Vokurka (2005), reengineering processes are easier to accomplish in service delivery systems than in manufacturing systems. Ruiz et al., (2005) reiterated that service firms are able to design delivery systems in which customers are actively involved thus becoming self-service delivery systems. This, according to Palanisamy (2005) makes flexibility simpler and easier to implement.

2.6 Factors Influencing Electronic Banking

Research on consumer attitude and adoption of electronic banking showed there are several factors predetermining a consumer's attitude towards online and mobile banking such as a person's demographic, motivation and behaviour towards different banking technologies and individual acceptance of new technology. Similarly, it has been found that attitudes towards online banking and actual behaviours were both influenced by prior experience of computers and new technology and, other possible factors discussed below.

Regarding demographics factor, a study by Howcroft et al. (2002) revealed that younger consumers value the convenience of online and mobile banking more than older consumers. The study found that younger consumers regarded the lack of face-to-face contact as less important than older consumers. The study revealed that the educational levels of respondents did not affect the use of telephone or online banking.

Karjaluoto et al. (2002) found that a typical user of online banking in Finnish market was highly educated, relatively young and wealthy person with good knowledge of computers and the internet. The study proposed that demographic factors have an impact on online banking behaviour.

Machauer and Morgner (2001) focused on segmenting the consumer in bank marketing by expected benefits and attitudes. The study used cluster analysis to separate customers into four groups namely the transaction oriented, the generally interested, the service oriented, and the technology opposed group.

Barczak et al. (1997) studied consumers' motives in the use of technological-based banking services and found motivational clusters for people's money management philosophies. These clusters were identified as security conscious, maximisers, instant gratification, and hassle avoiders. Each of the four motivational segments had different attitudes and behaviours towards different banking technologies.

With regard to new technology acceptance, the literature points out that unless, the specific need of a consumer is fulfilled, consumers may not be prepared to change from present familiar ways of operating (Sathye, 1999). Thornton and White (2001) noted that changes in the use of delivery channels would occur as the population matures as knowledge, confidence and computer usage increases.

Karjaluoto et al. (2002) revealed that prior experience with computers and technologies and attitudes towards computers influence both attitudes towards online banking and actual behaviours. The study revealed that prior computer experience had a significant impact on online banking usage while positive personal banking experience seemed to have had an effect on both attitudes and usage and satisfied customers tend to keep up with their current delivery channel.

A number of recent studies on customer satisfaction with bank services indicate that early adopters and heavy users of internet banking are more satisfied with this service compared to other customers (Polatoglu and Ekin, 2001). Joseph and Stone (2003) argued that the delivery of technology services appears to be correlated with high satisfaction where these services were most important to customers.

Karjaluoto et al. (2002) showed that reference groups have equally affected attitudes and behaviours towards online banking. They also suggested that the overall strongly positive attitudes towards online banking are faster, cheaper, easier and more service-oriented.

Other crucial success factors include organisational competence for innovation (Ghoshal and Ackenhusen, 1998) as well as having a centralised processing unit in the head office to reduce operating cost and realise economies of scale (Devlin, 1995). The consumer research lacks empirical evidence from an operational point of view about what factors influence consumer adoption of mobile banking.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that the study adopted. A description of the research design adopted and the reason for its adoption are presented followed by an explanation of the intended target population. Further, data collection tools and techniques used are presented. Finally, an explanation on how the collected data was analyzed and subsequently presented is also given.

3.2 Research Design

This study focused on operation strategies used in mobile banking. The study intended to uncover the operational factors that had seen the success of the service. This was an embedded case study. An embedded case study is a case study containing more than one sub-unit of analysis (Yin, 2003). An embedded case study methodology provides a means of integrating quantitative and qualitative methods into a single research study (Scholz & Tietje, 2002; Yin 2003). Given that both the managers of the company and some of the selected M-pesa dealers were used in the study as units of analysis, an embedded case study design was the appropriate one for the study.

3.3 Target population and Sample

The target population for the study was Safaricom company managers as well as M-pesa agents across Nairobi. There were 15 managers and 4200 M-pesa agents in Nairobi by August 2010. Thus, the target population was 15 managers and 4200 M-pesa agents. It made sense to limit the study population to Nairobi as most of the M-pesa dealers and agents were located in Nairobi. Thus, the sentiments of the agents in Nairobi, who also had other branches in other parts of the country, were presumed as the sentiments of all other M-pesa agents in the country. The results of the study were therefore applied across the country as the status quo. The respondents were the managers and the agents.

A sample was selected using purposive sampling method. In terms of the selection of management, three managers were selected. The three managers were the M-Pesa Department Manager as he was presumed to have full information on the operational features of M-pesa. The other two managers were the ones in charge of Operations Department and the Head of Marketing and Sales Department. The sentiments of the managers were corroborated with those of the selected M-pesa agents. A total of 41 M-Pesa agents were selected. The M-pesa agents were selected using simple random sampling technique.

3.4 Data Collection

The type of data that collected was primary. The primary data was collected using interview guides and questionnaires. The interviews were performed using face-to-face interview method. The managers were interviewed on what operational features they have put up to

enable the growth of their M-pesa business unit. The managers were also interviewed on the challenges the business was facing. Notes were taken during the interviews and tape-recorders also used to record the interviews with the managers. These interviews were conducted at appropriate times with the permission of the management of the company.

Finally, questionnaires were administered to the selected M-pesa agents at appropriate times to understand, from their perspective, what operational factors had influenced the growth of M-pesa in Kenya as well as the challenges they faced in handling M-Pesa business. The questionnaires were self-administered by the researcher. Cover letters explaining the objectives of this study as well as an authorization letter from the university to allow the researcher perform collect data from the respondents accompanied the questionnaires.

3.5 Data Analysis

The collected data was analyzed using qualitative as well as quantitative methods. The questionnaires contained closed and open ended questions and mainly address the first objective of the study: operations strategies affected performance of M-Pesa. The questionnaires were sorted and coded in the Statistical Package for Social Sciences (SPSS) software. These were the responses from M-Pesa agents. The open ended questions were analysed qualitatively using content analysis where results were presented under identified themes as per the objectives of the study. The closed ended questions were analysed quantitatively based on percentages and frequencies and presented in tables and charts. Further, the Likert scale type questions were analyzed using mean scores, standard

deviations, and factor analysis. Mean scores show the statements that most of the respondents agree with.

The second objective: challenges facing M-Pesa service was addressed in the interview guide. Analysis was done using qualitative methods. Content analysis was used to analyse the responses of the interviews. As such, common themes were identified and put together during analysis.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis, results, and discussion of findings. Questionnaires were administered to 41 M-Pesa agents while interviews were performed with 5 managers at Safaricom. The questionnaires were distributed during the month of October and the whole data collection process was completed by 15th November 2010. By this time, all the 41 questionnaires had been collected. The interviews were carried out between 11th November and 18th October. The data analysis process then began with the coding of questionnaires and entering as well as writing down the excerpts from the interviews. The results from both questionnaires and interviews are presented below.

4.2 Characteristics of Respondent M-Pesa Agents

This section shows the results on the provinces in which the M-Pesa agents operated as well as the number of branches they had. The responses are derived from the first two questions of the questionnaire administered to the M-Pesa agents.

4.2.1 Operational Reach of M-Pesa agents

The respondents were asked to state the provinces in which they operated their M-Pesa shops. The analysis was performed using multiple responses as it was possible for one M-Pesa agent to be operating in more than one province. The results are shown in terms of frequencies and percentages. The results are shown in Table 1.

Table 2: Provinces in Which M-Pesa Agents Operate

	N	Percent of Cases
Nairobi	41	100.0%
Coast	2	4.9%
Nyanza	1	2.4%
Rift Valley	1	2.4%
Western	1	2.4%
Central	1	2.4%
Eastern	1	2.4%
North Eastern	1	2.4%
Total	49	119.5%

The study found that all the agents were operating in Nairobi, 4.9% in Coast, and 2.4% in Nyanza, Rift Valley, Western, Central, Eastern, and North Eastern provinces respectively.

The results show that most of the M-Pesa agents are concentrated in Nairobi than in other parts of the country.

4.2.2 Number of Branches

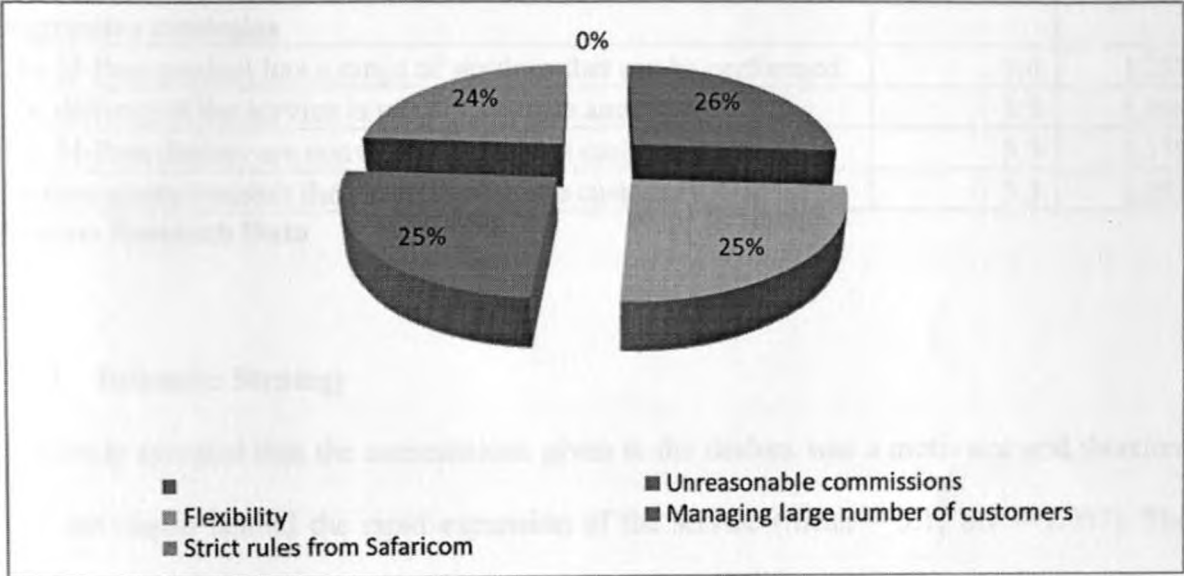
The results in Table 2 show the number of branches owned by the M-Pesa agents. The results are presented in terms of frequencies and percentages.

Table 3: Distribution According to Number of Branches

	Frequency	Percent
Less than 5	19	46
5-10	14	34
11-15	5	12
16-20	1	2
21 and above	2	5
Total	41	100.0

The study found that 46% had less than 5 branches, 34% had less than 34% had 5-10 branches, 12% had 11-15 branches, 2% had 16-20 branches while 5% had over 20 branches. The results show that most of the agents had less than 5 branches. These results are also shown in Figure 1.

Figure 1: Distribution According to Number of Branches



4.3 Operations Strategies Adopted for M-Pesa by Safaricom

This section presents the results on the operations strategies adopted for M-Pesa by Safaricom. The results are shown in terms of mean scores and standard deviations. The descriptive results are shown in Table 4. Further, Table for shows a factor analysis on the responses. The factor analysis was performed in order to group the statements into distinct operations strategies for M-Pesa. The results are shown in terms of factor loadings. The statements corresponding to a specific operations strategy are shown with their factor loadings.

Table 4: Operations Strategies used for M-Pesa

	Mean score	Std. Dev.
Defensive strategy		
The service quality is superb as deliveries are free of errors.	3.0	1.131
The safety of the use of service is its major advantage	3.6	1.202
The service is offered at a cost lower than those of the competitors	1.9	1.172
The commissions given to dealers is a motivator	3.1	1.017
Innovation strategy		
The product is designed for easier customers to use	3.7	1.137
The addition of use of ATMs to withdraw money	3.4	1.01
Aggressive strategies		
The M-Pesa product has a range of services that can be performed	3.6	1.237
The delivery of the service is usually on-time and rapid.	3.3	1.104
The M-Pesa dealers are conveniently located easing accessibility	3.3	1.159
Dealers/agents transact the business with the customers	3.3	1.292

Source: Research Data

4.3.1 Defensive Strategy

The study revealed that the commissions given to the dealers was a motivator and therefore was the reason behind the rapid expansion of the service (mean = 3.1, SD = 1.017). The managers reiterated that the rates they were giving to the dealers were very competitive in the market and that is why there were very many people willing to be Safaricom agents and dealers all over the country. They cited that the demand from businesses to transact as agents and dealers has been so high such that some of the requests have been turned down on grounds that the company is processing a lot of requests already.

The study found that the service quality provided by M-Pesa was superb as the deliveries were free of errors (mean = 3.0, SD = 1.131). On this issue, the managers cited that the problems arise only when the customers make mistakes in terms of incorrectly writing recipient numbers and usually when the company is notified of the error it rectifies within the

shortest time possible. In order to reduce these errors, the company is planning to roll out new SIM cards that will enable the customers to pick numbers directly from their phone books. Safaricom will be charging a small fee for the replacement to partly recover the cost.

The respondents agreed that the safety of the use of service (security) was its major advantage (mean = 3.6, SD = 1.202). The managers noted that the PIN that the customers use is only known by them and no transaction can take place without PIN request. This makes the service very secure. Thus, security issues have been fully taken care of by the company. Further, there is a maximum and minimum cap on the amounts that can be sent or withdrawn at from the phone. This makes it impossible for money-launderers to use or abuse the service.

The study revealed that the cost of the service was not lower than that of the competitors (mean = 1.9, SD = 1.172). This is so because as at the time of this study, M-Pesa was the most expensive of the three money transfer services. The other two mobile money transfer services, Zap (from Zain Limited) and YuCash (from Essar Telecom Kenya), charge very low fees for the transactions. This makes Safaricom the most expensive in the market thus it cannot be said that the company uses cost strategy as an operational strategy. The study concludes that company employs the defensive strategies in order to keep the money transfer service very competitive in the market.

4.3.2 Innovation strategy

The study found that the M-Pesa is designed to ease the use by customers (mean = 3.7, SD = 1.137). The managers explained that the M-Pesa menu was very simple to go through and

understand all the transactions that a person needs to perform. Further, the company has printed several pamphlets on how to use the service with several numbers for various services required. This information is also freely available on the Safaricom website www.safaricom.com.

The study revealed that another strategy used was the use of ATMs to withdraw money from M-Pesa (mean = 3.4, SD = 1.01). Safaricom has partnered with Pesapoint where M-Pesa customers can withdraw money from many of its ATMs countrywide. The company has also partnered with banks such as Equity Bank and Diamond Trust Bank where the M-Pesa customers can also withdraw money from the M-Pesa accounts. This section concludes that indeed Safaricom has aptly employed innovation strategy as an operations strategy in order to keep M-Pesa ahead of the competition as well as to make the service more attractive to various types of clientele –individual and corporate.

4.3.3 Aggressive strategy

It was also noted that the M-Pesa product has a range of services that can be performed (mean = 3.6, SD = 1.237). For instance, instead of just receiving and sending money, there are several services such as paying bills, buying airtime, and buying goods using the phone. Recently, the company signed an agreement with Uchumi and Naivas Supermarkets to enable its customers pay for their goods at supermarkets using the M-Pesa mobile money service. Dubbed *Nunua na M-Pesa*, the new service can be enjoyed by over 12 million M-Pesa customers and is initially available at all Uchumi and Naivas Supermarket outlets across the country. Currently there is no charge to use the *Nunua na M-Pesa* service; however

Safaricom may at a later stage introduce a nominal fee. It has also signed contracts with Sarova Hotels where guests can settle bills through M-Pesa. The other collaboration is with Barclays Bank of Kenya where the bank can offer a number of services under Safaricom's M-PESA platform.

The study found that the respondents agreed that the delivery of the service was on-time and rapid (mean = 3.3, SD = 1.104). The managers cited that the response from each of the transactions is usually immediate. They also noted that there are some times when the network service is poor but such problems are usually rectified before it becomes a disaster. This makes the delivery very efficient and reliable.

The respondents cited that the M-Pesa dealers are conveniently located making them easily accessible to the clients (mean = 3.3, SD = 1.159). There are so many M-Pesa agents all over the country that it is hard not to spot any in any part of the country. There are over 19,000 M-PESA agents countrywide with new outlets being added daily.

The study also found that having dealers to transact the business with the customers was the best strategy that Safaricom took (mean = 3.3, SD = 1.292). The managers cited that the dealers are not employees of the company and therefore the company saves on such costs that may have accrued if the company was the one doing the M-Pesa transactions. This section concludes that there are a number of aggressive strategies evident in the way M-Pesa service is operated. Thus, one of the major strategies used by Safaricom for M-Pesa money transfer service was aggressive strategy.

Table 5: Factor Analysis of Operations Strategies for M-Pesa

	Operations Strategies		
	Defensive Strategy	Aggressive Strategy	Innovation Strategy
The service quality provided by the M-Pesa is superb as deliveries are free of errors.	.785		
The safety of the use of service is its major advantage as the money is safe in the account.	.768		
The service is offered at a cost lower than those of the competitors	.705		
The commissions given to dealers is a motivator hence the reason for rapid expansion	.561		
The delivery of the service is usually on-time and rapid.		.813	
The M-Pesa product has a range of services that can be performed		.668	
The M-Pesa dealers are conveniently located making it an easy access to the clients		.667	
Having dealers to transact the business with the customers was the best strategy the Safaricom took		.572	
The addition of use of ATMs to withdraw money was a viable and timely innovation			.835
The product is designed in a way that makes it easier for the customers to use			.692

Source: Research Data

4.4 Challenges Facing M-Pesa Service

This section presents the results on the challenges the M-Pesa service is facing. The results are shown in terms of mean scores and standard deviations. The mean scores range from 1-5 as was given by the likert type questions. The results are shown in Table 5.

Table 6: Challenges Facing M-Pesa

	Mean Score	Std. Dev.
Unreasonable commissions	3.0303	1.04537
Flexibility	2.9412	1.43424
Managing large number of customers	2.9118	1.42207
Strict rules from Safaricom	2.7812	1.33765
Problematic customers	2.6944	1.26083
Reliability	2.6875	1.53323
Float problems	2.6452	1.01812
Cash problems	2.0789	1.12422
Fraudulent transactions	1.9143	1.14716

Source: Research Data

The study found that there were no major challenges that the M-Pesa service was facing from the agents' point of view. Top on the list of the agents' challenges was unreasonable commissions (mean = 3.03, SD = 1.04537). They cited the fact that the commissions were low considering the fact that they deal with so many clients on a daily basis.

The study noted that the second challenge was flexibility (mean = 2.9412, SD = 1.43424). Currently, there are not so many bills that can be paid through M-Pesa but the company is fast increasing the services that can be offered through M-Pesa. More bill payments are being added onto the M-Pesa service so that it can be more flexible.

The least of the challenges was fraudulent transactions (mean = 1.1943, SD = 1.147). This is because the company has put measure checks just to ensure that the M-Pesa is not used for fraudulent transactions. In order for one to use the service, it is mandatory to provide national identification cards or any official identification to the agents.

Table 5 shows the results on whether the agents who took part in the survey were satisfied with the M-Pesa service.

Table 7: Satisfaction with M-Pesa Service

	Frequency	Percent
Yes	36	92
No	3	8
Total	39	100.0

Source: Research Data

The results show that 92% of the respondents were satisfied and 8% were not satisfied. This reveals that most of the M-Pesa agents were satisfied with the service.

CHAPTER FIVE

SUMMARY, RESULTS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of research findings, conclusion of the study, recommendations for policy and practice, limitations of the study, and suggestions for further research.

5.2 Summary of Findings

The study found that all the agents were operating in Nairobi, 4.9% in Coast, and 2.4% in Nyanza, Rift Valley, Western, Central, Eastern, and North Eastern provinces respectively. The study found that 46% had less than 5 branches, 34% had less than 34% had 5-10 branches, 12% had 11-15 branches, 2% had 16-20 branches while 5% had over 20 branches.

It was revealed that the commissions given to the dealers was a motivator and therefore was the reason behind the rapid expansion of the service (mean = 3.1, SD = 1.017). It was found that the service quality provided by M-Pesa was superb as the deliveries were free of errors (mean = 3.0, SD = 1.131). The respondents agreed that the safety of the use of service (security) was its major advantage (mean = 3.6, SD = 1.202). The study revealed that the cost of the service was not lower than that of the competitors (mean = 1.9, SD = 1.172). The study found that the M-Pesa is designed to ease the use by customers (mean = 3.7, SD = 1.137). The study revealed that another strategy used was the use of ATMs to withdraw money from M-Pesa (mean = 3.4, SD = 1.01). It was also noted that the M-Pesa product has a range of services that can be performed (mean = 3.6, SD = 1.237). The study found that the

respondents agreed that the delivery of the service was on-time and rapid (mean = 3.3, SD = 1.104). The respondents cited that the M-Pesa dealers are conveniently located making them easily accessible to the clients (mean = 3.3, SD = 1.159). The study also found that having dealers to transact the business with the customers was the best strategy that Safaricom took (mean = 3.3, SD = 1.292).

Top on the list of the agents' challenges was unreasonable commissions (mean = 3.03, SD = 1.04537). The study noted that the second challenge was flexibility (mean = 2.9412, SD = 1.43424). The least of the challenges was fraudulent transactions (mean = 1.1943, SD = 1.147). The results show that 92% of the respondents were satisfied and 8% were not satisfied.

5.3 Conclusion

The study concludes that company employs the defensive strategies in order to keep the money transfer service very competitive in the market. It is concluded that indeed Safaricom has aptly employed innovation strategy as an operations strategy in order to keep M-Pesa ahead of the competition as well as to make the service more attractive to various types of clientele. The study also concludes that there are a number of aggressive strategies evident in the way M-Pesa service is operated.

5.4 Recommendations for Policy and Practice

The company should consider competing as a low cost leader in order to capitalise on the market share it has currently. Given that the competitors are offering better deals in terms of prices, it is only a matter of time before this market share can be eaten up.

The study recommends that the company should be more aggressive now that the market is not a monopoly as before. This can be done by enhancing the network inefficiencies that sometime bedevil the use of the service for instance delays in transactions.

More partnerships with commercial banks need to be entered into so as to increase the accessibility of floats for use by M-Pesa agents as sometimes the customers are not served because of float issues.

5.5 Limitations of the Study

Data was collected from only one company. This may limit the application of this study to the industry as far as the use of operations strategies for money transfer services are concerned.

The other limitation was time factor as it was not possible to cover all the agents in Kenya and thus the area was limited to Nairobi region only. These issues may limit the applicability of the research findings to the entire agents.

5.6 Suggestions for Further Research

There is need to replicate these results to other sectors to establish the operations strategies adopted. Also, there is need for future studies to increase the sample firms. It would be prudent to cover at least the mobile money transfer companies in Kenya.

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APPENDICES

Appendix 1: M-Pesa Dealers' Questionnaire

Kindly fill in this questionnaire as accurately as possible.

1. In which provinces are you currently operating? Please tick as applies.

Nairobi ()

Coast ()

Nyanza ()

Rift Valley ()

Western ()

Central ()

Eastern ()

North Eastern ()

2. How many branches do you currently have?

Less than 5 ()

5-10 ()

11-15 ()

16-20 ()

21 and above ()

3. What problems are you currently facing as an M-pesa dealer? State the extent of the problem.

Problem	1	2	3	4	5
Cash problems					
Float problems					
Problematic customers					
Flexibility					
Reliability					
Strict rules from Safaricom					
Unreasonable commissions					
Fraudulent transactions					
Managing large number of customers					

Others (specify below)

.....

.....

.....

.....

4. Generally, are you satisfied with the way M-Pesa service is currently operating? Give reasons for this.

.....

.....

.....

.....

5. Fill in the table below by ticking appropriately the extent to which you agree or disagree with the statements.

- Strongly disagree 1
- Moderately disagree 2
- Moderately agree 3
- Strongly agree 4
- Neither agree nor disagree 5

Statement	1	2	3	4	5
The service is offered at a cost lower than those of the competitors					
The M-pesa dealers are conveniently located making it an easy access to the clients					
The commissions given to dealers is a motivator hence the reason why the service has expanded rapidly.					
The service quality provided by the M-pesa is superb as deliveries are free of errors.					
The delivery of the service is usually on-time and rapid.					
Having dealers to transact the business with the customers was the best strategy the Safaricom took					
The addition of use of ATMs to withdraw money was a viable and timely innovation to the Safaricom company.					
The M-pesa product has a range of services that can be performed and this is a big advantage to the customers					
The product is designed in a way that makes it easier for the customers to use					
The safety of the use of service is its major advantage as the money is safe in the account.					

Appendix 2: Manager's Interview Guide

1. What are the general issues you can attribute to the success of M-pesa service in Kenya?
2. In terms of your operational strategy, what cost factors have you put in place to ensure that the service is affordable to as many people as possible?
3. What can you say of the quality of M-pesa service as regards customer service and service consistency?
4. How reliable is the M-pesa service?
5. In terms of your delivery/time strategy, what competitive measures have you put in place to ensure that delivery of services is rapid and on-time?
6. How is the service able to compete in terms of its flexibility, for instance, product flexibility (customized service to meet specific requirements of a customer) or volume flexibility (change to meet market demands)?
7. What security measures have you put in place to safeguard the customers and agents from security lapses of the system.
8. What other challenges is the service currently facing?
9. What is Safaricom's strategy for the future to ensure that the service is competitive in the market?