A PROPOSED MODEL FOR SUPERMARKET BRANCH NETWORK EXPANSION IN KENYA

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A Proposed Model for Supermarket Branch Network Expansion in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

I dedicate this thesis to my family, especially to Rigi Atondi and Georgina for opening my eyes to the world. Kaindi Jelagat for the shared hard times. Hagai Omete and Leon Ogolla for instilling the importance of hard work and higher education. The late Sylvester Ogolla, Otieno Nyamrey and Immaculate for they are books that were never read. Ken, Nelson, Caro, Judy, Ochieng, Florence, Rahila, Rowena, Rehema (Lollipop) Pau, Babu, Namu ,Ogola Wuod Rongo, Baba, Riana and Wilfred Omete, the grand who praised Atondi Calling him Agola—figures never lie.

Above all my Almighty GOD for giving me life and Dreams.

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ACRONYMS AND ABBREVIATIONS

DA: Display all

DC: Distribution Centers

DO: Display One

DSD: Direct Store Delivery

DT: Downtown

FMCG: Fast Moving Consumer Goods

ISM: Interpretative Structural Modeling

MICMAC: Matrice d'Impact Cruises Multiplication Appliqué clasement(Cross Multiplication Matrix)

SDG: Sustainable Development Goals

SKU: Stock Keeping Unit.

TUI: Traded Units Barcodes

DEFINITION OF TERMS

Branch Network Design: a plan produced to show the look and function of different retail chains variables for optimal operations before strategy is applied (Kou, 2005).

Branch network expansion: Supply chain strategy where the numbers of branches are increased (Kivelli & Shaws, 2008)

Consignment Models: Retailing models where renowned retailers allow suppliers to stock their goods in retail stores (Hasliza et al 2013).

High spend: Vital few suppliers (Hasliza et al 2013)

Intercept Model: A regression model with no predictors (Newman & Cullen, 2005)

Last 50 Yards: A supply chain strategy whereby retailers highly monitor activities between the store's loading dock and the customer's hands (Hasliza et al 2013).

Nash bargaining: A notion in game theory where players play best responses to each other's' best responses (Punch, 2005).

Product assortment: Is the different type of products that a business makes or a retailer offers for sale (Kalubanga, 2012)

Retailing: The act of selling and delivering products to the final consumer to fulfill the customers' different utilities (Kalubanga, 2012).

Self facing: Number of units visible at the front of a shelf (Tripathi, 2008)

Solus supply models: Where small suppliers sell their supplies to a single supply network (Hasliza et al, 2013).

Store brands: Designating a product manufactured or packaged for sale under the name of the retailer rather than that of the manufacturer. (Ali, Kapoor & Mootthy, 2010)

Store image: The complex of a retail stakeholder's perceptions of the value addition process of the supply chain in totality Impression of a store in the minds of stakeholder's based on the operation activities (Lee, 2006)

Store layout: A store layout is the design in which a store's interior is set up for logistical purposes (Dass, 2012)

Store location: A space you lease for the selling of goods to consumers (Hoch,Kim & Montgomery, 2005)

Supermarket: Self service retail stores (Kou, 2005)

ABSTRACT

The aim of this study was to design a model explaining branch network expansion of selected supermarkets in Kenya. The specific objectives of the study were to determine how store layout design, store image, retail assortment, branch location and store brands influence branch network expansion. The study employs the Wheel of Retailing, Hotelling location, Queuing and Game theories to explain branch network expansion. The study adopted a mixed research design collecting both qualitative and quantitative data at the same time. The inclusion criteria was supermarkets with more than 5 branches and with an annual turnover above 0.5 billion. A sample size of 300 was derived from 1200 employees using the slovin's formula. Proportionate stratified sampling was used to draw the sample. Qualitative data was collected using focus groups while quantitative data was collected through a likert type questionnaire. Three hundred questionnaires were distributed and one hundred and eighty three were returned. Thereturned questionnaires were analyzed using the statistical package for social scientists. The findings reveal that all the independent and dependent variable were significantly related at p=0.000. The study concludes that branch location and store brands are branch network expansion drivers. Store layout and store image are linkage factors while retail assortment is a follower to other factors during branch network expansion. At the first hierarchy of the model is retail assortment, followed by store layout and store brands, store image at level three and branch location at level four. The study recommends that retailers needed to adopt layout designs similar to distribution centers and suppliers. The study further recommends that retailers needed to use their established names during mall negotiations. Flagship stores to be open in cities, next to bus stops and also inventory control negotiations maximized through use of store brands.

CHAPTER ONE

INTRODUCTION

The aim of this research study was to design a model to be used in explaining Supermarket Branch Network Expansion in Kenya. This chapter discusses an introduction into the study; specifically, the background of the study, with the sub-sections of the background to the study entailing the global, regional and local perspective on branch network expansion. The chapter also presents the statement of the problem bringing out how and why the study should be undertaken by comparison of statistical evidence. The general, specific objectives as well as hypotheses that support the study have been clearly outlined. Justification, scope of the study and limitations of the study are also discussed.

1.1 Background to the Study

Retail supply chain management is a contemporary and evolving field which is a culmination of two different areas of management: supply chain management and retailing. Even though there are many refereed journals in the field of supply chain management and retailing, there are not many research papers in the area of retail supply chains especially supermarkets (Avirat, 2006). Due to the power that comes with the control over consumers, retailers are often dominant in a supply chain and this closeness gives retailers fast information to organize and inform the supply chains. They retail goods to customers and help in management of downstream relationships, enabling the supply chain to deliver value at less cost (Msimangira & Sitalakshmi, 2014). While providing this function they integrate customer demand and other channel member's supply into the supply chain as well as managing their own retail supply chains.

Supermarkets like other retail members are affected by a number of issues that virtually concern all retail and service organizations whose supply chains are reliant on branches. These include where best to site outlets; what size and format of stores to employ; what

mix of products to incorporate; the area of outlets, promotion and the choice of the most efficient methods to solve customers' logistical problems. These are generic problems, relevant to banks, grocery, superstores, and petrol stations. For banks, groceries and petrol stations, practical frameworks have been developed on branch network expansion modes (Sinha, & Uniyal, 2007; Srivastava, 2008). According to Srivastava, (2008) there is an absence of practical frameworks for helping retailers to plan their store supply chains and networks in supermarket retail expansion literature. This has given selected supermarket retailers an advantage to expand their branch network creating oligopolies whose competitive edges cannot be explained.

Due to the retail and extension setbacks of supply chains, retail businesses today operate in tough decision making environment that requires clear models. According to Kuruvilla, Xia and Monroe (2010) study on consumer perfection in India it was found that some of the important hypothesized reasons for the complexity of retail decision making process are: high competition and low conversion costs of retail shops to supermarkets, large scale supply chain networks established by supermarket formats, hierarchical structure of decisions, randomness of various inputs, operations and the dynamic nature of the interactions among supply chain elements. The author illustrates that because of the inherent complexity of decision making in retail chains, there is a growing need for practical models that can help identify and innovate strategies to design high performance retail chain networks. In this case, modeled strategies need to involve the total mix of operating, merchandising tactics and practices used by particular supermarket to distinguish and differentiate themselves from competing retailer chains and formats.

During supply chain modeling, formats could involve the bundling of retailing in ways considered most appropriate for the market place and supply chain network expansion. According to Pan and Zinkan (2006) this is so because customers are increasingly demanding better and innovative business models that are specifically customized to meet their unique needs. Specifically, during branch network modeling there is also an

implicit requirement on the models presented to offer accuracy, timeliness, convenience, responsiveness, quality and reliability (Durieu, 2005). According to Gupta (2008) while applying Data Envelopment Analysis (DEA) asserts that self-service retail models are the chain link of supply chain performance. Hence companies are required to drive growth by applying distinct business models in their business to deliver the greatest value. Today, modeling approaches involving optimization and simulation are widely used for supply chain improvement and design. Shapiro (2008) study findings on retailing relationship concur with the former author by illustrating that the use of models are important but requires large amounts of quantitative, qualitative data and that the reliability of the models highly depends on the reliability of the input data.

Globally, selected supermarket sales are growing at aspectacular rate, far faster than home countries' rapid gross domestic products (GDP)growth rates and entrepreneurial thought (Reilly, 2006). Supermarkets retailers such as Walmart, K-Mart, Morrisons, Kroger, Aldi, Mercadona, Carrefour, Alcampo and Metro have dominated the global retail market opening branches and establishing themselves as global brands in Europe, Asia, America and Africa.The retailers have monopolised various sectors such as food, groceries, clothing, footwear and furniture.The global giants have been characterised by extending their branches organically (opening own branches) and externally through strategic alliances (Dalwadi, Rathod & Patel, 2010).

Although urbanization and increased global incomes have been important in the rise of these supermarkets, some other factors have played setback roles against the supermarkets as they extend their branches and presence. Intense competition, consolidation and lack of strategic thought have reduced the spread of supermarkets seeking to improve their positioning. In addition, host countries policies have not included tax incentives for supermarkets. Location regulations, poor supermarket procurement systems, branch strategic control and traditional retailing approaches have also stifled retail chain expansion. Discussing retail setbacks of global retailers, Eaton and Lipsey (2005) define a supermarket as a large low cost, low margin and high

volume store that carry wide variety of goods. The author provides that most global supermarkets are preferred since they enjoy economies of scale and afford to provide flexible shopping. Mishra, (2007) associates the quick spread of global retail networks to complementary service provided by restaurants and other offered formats such as hypermarkets, chain stores and departmental stores.

The supermarket segment in eastern Africa is dominated by few South African and Kenyan chains. The common method of branch expansion is organic. South African pick & pay has extended its branches to West Africa, Australia and Eastern Africa. Kenyan Supermarkets are in South Africa, Rwanda, Sudan and Burundi. Nakumatt has already entered the Burundian retail networks and is bracing the high competition of operators from Belgium, china, Netherlands and Pakistan. The Burundian market is one of the toughest retailing markets which have seen foreign giants such as cash & carry and lucky 7 exit in 2005 after brief operations (Pan & Zinkhan, 2006).

In Eastern Africa, Kenya is leading in terms of supermarket concentration. There is a growing demand for more outlets due to increased urbanization.It is estimated that the number of outlets will reach 129000 in 2018 from the current 112,000 (Gains report, 2015). Though with few branches, some of the supermarkets with potential include FoodPlus, GreenMatt, EldoMatt, Mulleys, Formatt, Gilanis, Khetias, Tessia, Mama Watoto, Frankmark, Chandarana, Bestlady, Sona, Al Maddy Store, Bagdan Store, Cleanshelf, Tumaini, EastMatt, QuickMatt and Mathai'sSupermarkets. Theunderlying retail penetration rate of between 20-30% endeavors international supermarkets to eye the Kenyan retail market withstrategies of acquisition and the use of greenbelt strategy of expansion. These supermarkets include Carrefour, Gamestore, MassMart, Choppies and Shoprite.

In Kenya, Supermarkets represents a third of the retail space and their annual growth is projected to increase at 18% yearly if it positively correlates with self-service demand (Neven & Reardon, 2010). According to these authors, the total sales by the top five

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leading supermarket chains amounted to $ 800 million in CY 2016 and are expected to keep increasing. These supermarkets include Nakumatt holdings, Tuskys, Naivas, Uchumi and Ukwala supermarket. The five have a concentration ratio of 75%.This five have continued to flourish the harsh retail environment amidst the problems facing their chains and expanded their branch networks successfully to the extent of even threatening major South Africa giants that enjoy economies of scale in Eastern Africa.

1.2 Statement of the Problem

The global retail strategy index for the period 2016–2017 recognizes branch network expansion as a valuable game plan that could be employed by major supply chain members at retail level. Highlighted in the index were location, branch numbers and the distance to distribution centers. The retail study cited the northward and southward branch network expansion of Sainsbury and Asda (Gains report, 2015). The report identified successful supermarkets as those having more than five branches regionally. The Nakumatt retail strategic plans for the period 2010 – 2014, corroborates these studies by supporting supermarket moves close to the customer in East Africa. With all this reports and strategies, supermarkets in Kenya still face branch network expansion challenges. This is sighted in the network expansion reports for 2008/2009 and 2011/2012 that describe theories explaining retail network expansion as descriptive to the extent that clear paths for branch network expansion cannot be extracted. In Kenya, focused research on branch network expansion and modeling is inadequate thus allowing five sister supermarkets with a market concentration of 75% to expand their supply chains monopoly in the retail industry yet they only constitute 0.005 % of total supermarkets (Euromonitor international, 2014). The five supermarkets own the industry and have moved into other Eastern Africa countries to outdo foreign giant supermarkets. Although the five have Kenyan roots, most other supermarkets are unable to benchmark themselves against the five. Moreover, local supermarkets have stagnated in a position of not opening more branches unlike the five although studies show that an increase in branch network by 0.26% increases retail visibility by 6% and that 72% of channel

expansion strategies used branches (Vida, Reardon & Fairhust, 2007). It is against this background that the study seeks to design a model for supermarket branch network expansion.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study was to design a model to be used in explaining supermarket branch network expansion in Kenya.

1.3.2 Specific Objectives of the Study

1. To determine the influence of Store Layout Design on Supermarket Branch Network Expansion in Kenya.
2. To establish the influence of Store Image on Supermarket Branch Network Expansion in Kenya.
3. To establish the influence of Retail Assortment onSupermarket Branch Network Expansion in Kenya.
4. To explore the influence of Branch Location decisions on Supermarket Branch Network Expansion in Kenya.
5. To determine the influence of Store Brands on Supermarket Branch Network Expansion in Kenya.

1.4 Hypotheses

The study was guided by the following hypotheses:

H_{01}: Store Layout Design does not influence Supermarket Branch Network Expansion.

H_{02}: Store Image does not influence Supermarket Branch Network Expansion

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H_{03}:   Retail Assortment does not influence Supermarket Branch Network Expansion.

H_{04}: Branch Location decisions do not influence Supermarket Branch Supermarket Network Expansion.

H_{05}:StoreBrands do not influence Supermarket Branch Network Expansion.

1.5 Significance of the Study

Retail supply chain management is a contemporary and evolving field that is a culmination of two different areas of management, supply chain management and retailing. The Global Retail Development Index 2016-17 identifies Africa more so Kenya as a promising region for retail expansion. Kenya has a penetration percentage of between 20-30% which offers room for more Supermarket Retail Models. This study will provide vital information to different parties and stakeholders with interest in retail, logistics and supply chain management.

For the selected supermarkets' management, the study will provide knowledge for branch network expansion. Upcoming businesses would benefit from this research as the core objective is to develop a generic model to make it easy for retailers to expand organically.

The study will also assist retailers to identify strategies which could be employed to manage supermarket supply chains. This study will provide reliable information for researchers and scholars interested in studying retailing patterns, strategies and related supply networks. This study seeks to add to the knowledge of retailing, supply chains and academics in general. Research results from this study will assist the government in supply chain network regulation. The derived model will also assist the government in entrepreneurial knowledge transfer to households venturing into supermarket retailing.

1.6 Scope of the Study

The study was carried out in Kenya with five supermarkets with an annual turnover of 0.5 billion and having more than five branches (Gains report, 2015). The study was carried out during the period 2015-2017. The researcher interviewed staff at the operations levels. Geographically all the supermarkets are located in major cities and towns in Kenya.

1.7 Limitation of the Study

This research is not without limitations. First, the research was developed primarily for supermarkets and is based on strategy and culture providing competitive advantage. No consideration of the other stakeholders in the retail supply chains has been considered. This may limit the opportunity to get views of how the applied strategy impacts on other stakeholders. Moreover, the fact that the study was being carried out in supermarkets branches during operation hours, the response of the respondents was constraint by time. To provide wider perspective to the study, future research could consider involving other supply chain stakeholders in the retail industry and also interview respondents during joint forums.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter discussed literature related to retail branch network.It employed the wheel of retailing, Hotelling, Retail location, Queuing and Game theories to explain supermarket branch network expansion. The conceptual framework, empirical review, critique of existing literature and research gaps are also discussed.

2.2 Theoretical Framework

Significant bodies of research and theories suggest specific variables expected to promote expansion of retail outlets and provide competitive advantage to supermarkets retail chains (Gall & Borg, 2007). Variables considered will lead to superior performance while serving customers optimally (Wrigley, Coe & Currah, 2005), high coordination in supply chains (Zentes & Schramm-Klein 2007) provide high firm-customer relationship (Shukla & Jain, 2008) and swift information transfer in supply chain management (Vida & Reardon, 2007). All the variables suggested highlight the increased value addition to supermarkets and supply chain activities. This study adopted the following theories**:**

2.2.1 The Wheel of Retailing Theory

The wheel of retailing was developed by McNair in 1958(Chang& Tu 2005). The authors suggest that new retail formats started as discount store and improved their service to better positions in the market. Singh (2007) observes that new forms of retailing initially appear as price cutting, low cost and small profit operators. According to the theory, the retailer trades by value addition, good locations and logistics. The theory further postulates that retailers mature as high cost, price and conservative

operators making themselves vulnerable to new and lower priced entrants while addressing retail assortment, store image and branch location. Karuvilla and Joshi (2010) carried out a survey on UK retailers and illustrated that low priced retailers and their supply networks needed to avoid incurring extra costs on existing formats. The authors propose that retailers should instead open other stores offering better logistical services and premium brands to take care of up market segments. Sparks (2011) study propose that it is advisable that stores should be different in brand names, assortment and even the way they run procurement and logistical operations along the growth wheel. Brown (2005) studies employing the wheel of retailing theory illustrate that changes in product assortment, distribution centers and supplier management are some of the key variables helping retailers mature. The author recommends that it is important to understand supply chains, trends and market events influencing the retailing wheel. Further developments by Craig, Staelin and Zeithaml (2006) significantly considered the external environment of the wheel. The authors cite suppliers and third party logistics providers as significant.

Curry (2005) observes that the wheel of retailing theory uses the store format changing nature and expansion to realign the performance of retailers in retail networks. The author emphasizes on warehouse formats, supplier control, distribution centres control, branch control assortment and location while discussing the wheel of retailing. Benito, Reves and Gallego (2008) supporting Craig *et al* (2006) illustrate that possible cause of the wheel pattern efficient logistics operations, third party reliance, misguidance and fear of retaliation. According to the author, the variables create instant changes on process cost and value chains forcing retailers to move to next levels of the wheel.

The wheel of retailing theory suggests that as the branches expands, available competing businesses become thinly spread forcing retailers to reduce competition (De-Kare, 2008). Chang and Tu (2005) warn of the danger of generalizing the wheel theory. They observe that most retailers copy wheel cycles of other retailers and therefore do not address available supply chain needs. The authors further fault this theory on the basis of

not providing enough literature on retail turn backs in supply chain expansion when some branches fail. Corroborating the former, studies by Cox and Britain (2006) attempted to expand on the wheel of retailing by including arguments and suggestions that it was not always true that firms entered the wheel cycle at primary stages. According to the authors happenings within the wheel are hard to explain and some retailers could enter the wheel at advanced stages and still catch up.

Nevertheless, Meheen and Bryde (2008) study on interactions among retail variables illustrate that departmental stores that started as low cost competitors to smaller retailers, employed non price competitive approaches akin to retail warehouses strategies. Using 13 supermarkets in Europe, the authors found out that performance reviews to keep retailers within the theory were cautious on carrying out long-term retail investment, short-term payback, satisfactory returns and the employment of portfolio analysis during investment appraisal of retail formats in supply chains. Positively, Sivadas and Baker (2008) observe that the methods retailers choose could highly depend on the different stage of the wheel. Retailers that fail to review or recognize each stage of the wheel soon find their supply chains losing a competitive advantage. Importantly, the retailers should have mechanisms for managers to give feedback on wheel stages so that appropriate strategies are employed. The wheel of retailing theory treats network expansion and in-store strategy as fundamental in retail industry.

2.2.2 Hotelling Theory of Business Location

This theory was suggested by Hotelling in 1929 and highly used in supply chain management by Vanquez and Bruce (2006). According to the theory, retail location and game plans significantly reduced transactional costs for customers as well as retailers based on their location. The theory posits that regardless of the strategies employed by retailers, they will try to find the most rewarding location in terms of access to the market and correlated multi-supply chains. Advancing the theory, Hotellings asserts that when retailers are located close to each other, they are likely to form a central network

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for customers in agglomeration. The author expanded the retailing phenomenon by using simple equations and lines of fixed lengths where each retailer game advance affected the overall profitability of the pareto. Hotellings *et al.* (1929) as cited by Basu (2006) devised the theory with the assumption that all retailers and supply chain operations were identical and spread along a corridor but with different locations. In Hotellings classic paper titled *competition stability*, Hotelling supported the minimum differentiation concept. The concept builds on the earlier thought that retailers operating within the same industry achieved higher performance if clustered together. Other retailing characteristics cited by the author include market size, number of competing retailers, distribution centres, supply networks, transport costs, logistics providers and the location used. In light of agglomeration, conflicting views by Das and Piyush (2012) and Fox (2014) have introduced the concept of output oriented supply chains. The authors illustrate that sellers try as much as possible to find the most rewarding location to access markets and supply chains. They predict that retailers would not compete in individual markets but on where the buyers were and their supply chains.

Analogously, factor of production oriented location literature has corroborated this line of thought indicating that most rational retailers would locate next to production units, distribution centres, third party logistics and supply sources. According to Satish and Raju (2010) the retail agglomeration concept supports Darwin's survival theory through assertions that location patterns of retail industries change as a result of deliberate moves on new locations. The theory appears to suggest that badly located retailers face disappearance. Recent studies by Anderson and Mittal (2010) have attributed retail attribution to increased city leisure hours and flexible supply chains. The authors attributed agglomeration of retailers to areas with consumer population, leisure related activities and where collection points such as bus stops and railway lines were.

Ideally, business districts transactions retailers pursue a strategy where they try to keep distance from others. This could work when business activities are market oriented. However, according to Agarwal and Audretsch (2007) in support of the theories, retail

services attract firms and customers stationed next to each other as clusters. The authors carried out studies in a number of countries and revealed that ladies' outfitters, supermarkets and departmental stores preferred agglomeration strategies particularly if in malls. Despite the interesting empirical work, the theory is faulted in its application particularly when explaining why out-of-town supermarkets tend to outperform those in central business districts. To these effect scholars such as Adan (2012) have suggested uncertain reduction and inductive insights need to support the theory particularly when designing branches and supply networks.

2.2.3 The Retail Location Theory

The retail location theory rests on three sub theories: the central location theory, spatial interaction theory and the Land value theory. The central location theory was first developed by Christaller in 1996 and further articulated by Craig *et al* (2006).Several other scholars (Agnese, 2005: Dick, Marttensen & Kristensen, 2005) have also recognized the value of this theory. The theory explains apparent order among patterns of retail settlements and central places where consumers' goods are retailed. As argued by Christaller, two fundamental concepts are identified: the range and threshold of a given retail product. The author further introduces the concept of surrounding center hierarchy where he proposes that the process of centralization would lead to clearly recognizable stepped hierarchy of retail centers. Several scholars (Sage, 2007; Singh 2007; Dass, 2007) have supported the central place theory while Berry and Garrison's theory of tertiary sector activity have tried to modify the theory by differentiating hierarchical settlements to fit different supply networks.

The spatial interaction was proposed by Robinson (2008) studies which developed the famous law of retail gravitation. According to Robinson, variables for retail operations base on the belief that consumers patronize competing shopping areas on the basis of their overall retail activities while monitoring population trends and logistical distance involved. Previously, on a trial to refine the model, Hansen and Deusche (2007) had

suggested that a shopping centre located in a zone attracted consumer from zones in direct proportion to sizes of given centers as measured by floor space and the inverse of the consumer travel time. In economic theory, spatially seems to work well in operations extending regional supply chain. Lakshmanan and Hansen (2005) studies note that the theory lacks satisfactory test to measure its closeness of fit with related theories such as the game theory. Other scholars such as Openshaw (2007) have also proposed calibration of the variables based on different retail locations and employed supply chains.

Haig (2006) present the land value theory by proposing that inelastic supply of land presented competition in the long run which created assurance that all urban centers sites are occupied by businesses capable of paying the highest rents. With the land value, Arshad and Hisam (2008) extended the theory with the bid rent curves, land use functions and slopes. The bid rent approach recognized that retailers have a desire to attract customers from the entire urban area and are therefore ready to pay high rentals irrespective of supply base if customer retention was high.

Studies by Firey (2007) and Gamer (2008) on service management in retail settings support this theory by citing its crosscutting significance in the retail location, logistics and agricultural land uses. According to Gamer (2008) the theory works in most retailing activities since total sales decreases with distance from the peak intersection of business centers. In his findings the author tries to explain the theory in relation to regional neighborhood and community retail business location distribution centre location. The theory is important to branch network expansion as it provides literature on best areas to site branches.

2.2.4 Queuing Theory

Delays and queues are common in supermarket, warehouses, distribution centres, banks, hospitals and public transport. Huffs (2006) define a queue as awaiting line. In queuing theory a model is constructed to predict queue lengths and waiting times (Popkowski, Peter & Timmermans, 2007). The theory is significant in supply chain network process re-engineering and management of operations as it uses results of queue prediction to make decisions about resources needed to provide service and improve supply chains (Magi, 2005; Morine, 2007). Queuing theory tackles arrivals and service requirements (technicians, pharmacists, tellers) as well as location of facilities. The authors illustrate the number of arrivals fluctuation over hours that facilities are available for business. According to Bank, Findlay and Sparks (2008) queuing models provide poison streams of arrival at retail facilities. Using retail warehouses, the authors show that in response to facilities available, customers prefer to attend to retail facilities that have quick service delivery and avoid queues. According to Srivastava (2008) delays in service jobs beyond due times result in losing customers. Queuing theory provides a conceptual model of waiting line conditions in distribution centres. According to Talwar (2010) it gives general understanding of factors such as arrival, good distribution, service distribution and the number of servers involved. Lather and Kaur (2008) studies on retail formats found out that for supermarkets retailers' pertinent questions are based on how many tills to offer and how queuing systems may be broken into subsystems to provide agility.

The author shows that in practice, the cost of waiting in line is at a maximum when the organization is at minimal service capacity. Using case studies in the US northern, western states and the queuing theory, the authors illustrate that as service capacity increases, there is a reduction in the number of customers in the line, waiting times and queuing cost. Operationally, the optimal total cost is found at the intersection between the service capacity and waiting line curves (Vida, Reardon & Fairhust, 2007).The authors further illustrate that customers demand varying degrees of service, at times exceeding normal capacity. In this case, the store manager could exercise control over

arrivals. For example, the simplest arrival-control mechanism is the posting of business hours. Other common techniques include lowering prices on typically slow days to balance customer traffic throughout the week and establishing appointments with specific times for customers. The authors point that queues are within the control of the supply management and design.

Queuing management consists of three major components: how customers arrive and exit. Since the Arrivals are described as constant and variable, the rule of thumb lies in remembering the two distributions that time between arrivals is exponentially distributed and the numbers of arrivals per unit of time is poisson distributed (Walsh, 2010). In supply chain management, the queuing system consists of supply nodes, distribution centres and distribution networks. Queue discipline is the priority rule for determining the order of service to customers in a waiting line and networks.

Talwar (2010) study illustrate that one of the most common used priority rule is first come, first served (FCFS) in retail places, distribution centers and third party logistics. The author highlights other approaches such as reservations, treatment via triage such as those used in hospital emergency rooms, highest-profit customer first, largest orders first, best customers' first and longest wait-time first. Studies by Baltas and Papastathopoulou (2005) identify an important feature of the waiting structure as the time the customer spend with the server once the service has started. The former refers this as the service rate as shown by the capacity of the server in numbers of units per time period.

According to Huff (2006) another important aspect of the servicing system is the line structure. The author identifies four types of systems: single-channel/single-phase; single-channel/multi-phase; multi-channel/single-phase; and multi-channel/multi-phase. The simplest type of waiting line structure is the single-channel, single-phase where there is only one channel for arriving customers and one phase of the service system. The author's studies on integration efforts cite drive-through window of dry-cleaners,

store or banks where there are two possible outcomes upon customer service. Applying the queuing theory in logistical applications, Lee (2008) illustrate that the problem in a queuing situation is of a trade-off decision. The manager must weigh the added cost of providing more rapid service against the inherent cost of waiting. For instance, if employees are manually entering data, a value analysis expert could compare the cost of investing in bar-code scanners against the benefits of increased productivity. Kalubanga (2012) extends the authors application by asserting that likewise, if customers are walking away disgusted due to insufficient customer support, the supply chain nodes could compare the cost of hiring more staff to the value of revenues and customer loyalty. The queuing theory is vital to branch network decision when deciding on facility location and operations.

2.2.5 The Game Theory

The game theory was formalized by Von Neumann and Morganstern in 1947. Its applications to competitive situations have provided a natural fit, in the areas of procurement, negotiations and competition (Ruiliang, 2010). The extensive usage of game theory by many operational managers in describing competitive situations such as oligopolistic behavior, collusion, cartel formation, structure and competition economics is the foundation for its usage within retailing and supply chain management (Jason & Marguerite, 2011). The use of game theory in strategy has ventured far from its initial emphasis on competitive behavior into many other applications of business along the supply and demand networks (Jensen, 2007).According to Jones (2010) supermarket branch network expansion strategy is still unclear. As many advocates as there are for using the game theory within the supply chain management discipline, there are equally many that declare that game theory is limited and theoretical in nature to have widespread applications (Laura, 2006). The assumptions and applications of game theory are based on complete information. Perfect information specify that each player is fully informed of prior choices at the time of choice and the maximization options if won expressed in expected profits or payoffs (Laroche, Bearman & Gilbert, 2007).

According to Swinyard (2007), when faced with uncertainty, players make subjective estimates of probabilities and then calculate their utility function from these estimates. Game theory's supporters have argued that in the real world, the supply chain results are not unilateral as they depend on competitor reactions. In support of the game theory, Lu (2006) reviewed why many retail firms have the same inevitable and sometimes suicidal tendency to buy the newest cost effective technology applications and source. According to this theory, there is need to compete successfully with each other so as to provide and highlight the prestige and power of those who manage the locational decisions and to provide a competitive advantage attracting customers, (Kivelli & Shaws, 2008). Fox, Montgomery and Lodish (2011) illustrate that based on its name as the theory of games, it is an important approach which could help in gaining competitor interaction insights. Using the theory, the authors further explain that a competitor can be regarded as a counterpart of a particular situation, such as teams or company supply networks. The decision makers compete selecting strategies with or without knowledge of the strategies selected by the other players (Wicker, 2005).

According to Jackson et al. (2011) studies on mall attributes corroborate the queuing theory by findings which show that in formulating the game of location in a particular mall, the characteristics of the game rely on a list of firms, the strategies available, the payoffs and the rational behavior of each player. The author provides that after identifying the players in a game, the next stage is to consider the strategies. Strategies are the operational choices available to players. However, in devising the strategies one must consider whether the game involves simultaneous moves made only once, or whether it involves sequential moves (Newland & Hopper, 2009). Proponents of the theory show that a game with sequential moves and actions of latter players could be dependent on the moves of prior players. Thus in deriving a solid strategy, all the different scenarios must be planned out, payoffs determined and each player assigned a numerical scale or a simple numerical rating, upon which the outcomes of the game can be compared.

Theoretically, the number associated with each possible outcome is called that player's payoff or utility (Ghosh, Tripathi & Kumar, 2010). A higher number represents a better outcome for the player. Depending on the game, the payoffs may be expressed in monetary amounts, or in utility considered a good performance indicator. One of the assumptions made by game theory is that in standard game theoretic analyses, each player behaves according to the rational man (Goyal &Aggarwal, 2009).Moreover, this theory assumes that players are perfect calculators and able to follow their best strategies to receive the highest possible payoff. Mittal and Mittal (2010) support the use of this theory by stating that the supply chain desire maximum profits whether competing or colluding.

2.3 Conceptual Framework

A conceptual framework refers to an organized way of thinking about why and how we understand activities. Kothari (2008) explains that a framework helps to explain why we do things in a particular way. It helps to understand and use ideas of others with similar studies. According to Mugenda and Mugenda (2006) its scale tells us how far different places and ideas are. The conceptual framework of this study includes five independent and one dependent variable.

Store layout design

- No of pathways(square foot/meter)
- Isle width
- Size in relation to ware house
- square feetretail costs

Store image
- Frequency of consignment model use
- delivery lead times
- set up cost in relation to image

Retail assortments
- width of products
- length of products
- dispersion of attribute levels

Branch location
- sales volume
- distance to distribution centers/suppliers
- no of loading and offloading facilities
- distance to customers

Store brands
- W/H costs of store brands
- Contribution of store brands
- Inventory levels of store brands

Branch Network expansion

- No of branches
- Market share of branches
- Net economic profit as % of supermarket total sales

Independent variables

Dependent variable

Figure 2.1: Conceptual Framework

2.3.1 Store Layout Design

A store layout is the design in which a store's interior is set up (Gupta, 2008). The author explores store layouts as well thought strategy to provide the best movement and arrangement. It is designed to create easy movement and arrangement of paths within the store. According to Hino (2010), it describes the overall look and flow in a retail store, including the placement of fixtures and products. Effective layouts are designed to expose customers to most products, given the amount of floor space available and related logistics. The author provides that a well-planned retail store layout allows a retailer to maximize the sales for each square foot of allocated selling space within the store.

Lu (2006), Sinha and Uniyal (2007) illustrate that store layouts generally show the size and location of each department, structures, fixtures number of pathways (square foot/meter), islewidth, size in relation to warehouse and customer traffic patterns. The former further shows that floor plan and store layout depends on the type of products sold, the retail location and how much the business can afford to offer in the overall store design. Layout for retail stores depends on the retailer's understanding of the customers' buying habits, cost of space, space availability and supply requirements. Thang and Tan (2007) studies on stores perception illustrate that some areas of a retail store generate more sales per square foot and are therefore more valuable. There are many factors retailers should consider before choosing a store layout design.

The former shows that the use of space is paramount since space needs effectively use, with all the areas planned to break up the store into logical and functional areas. Interior arrangements in terms of appearance, walls, sections, and areas should be planned and positioned well. The authors further show that lighting and music arrangement needs to be taken into consideration while planning a layout. This should be placed to suit different kinds of shoppers. The arrangements could be changed during different hours in a store or an operation period. According to Levy and Weitz (2007) study on floor

layouts, the straight floor plan is an excellent layout for most types of retail stores. It makes use of the walls and fixtures to create small spaces within the retail store. Well established stream of research rooted on store layout and design reveals that the straight floor plan is one of the most economical store designs (Baltas & Papastrathopoulou, 2005; Bank, Fidley & Sparks, 200; Dass, 2012). The diagonal floor plan is a good store layout for self-service types of retail stores. Most authors advocate for this layout claiming that it offers excellent visibility for cashiers, deliveries and customers. The diagonal floor plan invites movement and traffic flow to the retail store while the angular floor plan is best used for high-end specialty stores (Nielson, 2008). Levy and Weltz (2007) support the mixed floor plan claiming that it is good since it incorporates the straight, diagonal and angular floor plans to creating the most functional store design.

Holding all these layouts constant, Parker and Lehmann (2011) explain that a retailer's optimal store layout is a result of balancing the interests of two different types of networks namely consumers and suppliers. Studies by Mishra (2007) on store layout found out that a retailer's strategic manipulation of store layout is driven by the incentive to balance the shopping process thus fitting uncertain consumers and the pricing behavior of upstream suppliers. In his research, it is argued that retailers face two different kinds of markets. The consumers who buy goods and the manufacturers that supply goods. The author found out that these are very important variables for local retailers and operations managers to manipulate in an era of increased supply chain competition, and it has important implications for supply chains and consumers while checking on their layouts.

This argument is further corroborated by Singh *et al*. (2005) studies which found out that for many products, consumers typically remained uncertain about a product's fit until physically inspecting it. Supporting the same studies Spekman and Davis (2006) explain that although businesses compete using supply chains, they usually group all identical

products together in the same location, thus forcing the manufacturers to compete on layout presented and how it is designed to fit own stores.

Studies by Goyal and Aggarwal (2009) found that retailers want manufacturers to compete on location of products in the store. The supermarket and its processes, also influences store layouts of upstream manufacturers as not only do operations managers have to decide whether to locate their facilities together or not, but also balance strategy with consumers' store perception (Hino, 2010). For Ghosh *et al.* (2010) a store layout is the design in which a store's interior is set up. In this case a store layout is well thought to provide the best exposure possible. It is designed to create an attractive image for consumers and ease logistics while inside the store (Srivastava, 2008).

Bank *et al.* (2008) point out store layout and design features that can be further accentuated in order to create an appeal to customers and eventually turn browsers into buyers. The author elaborates on how a store entrance can reflect the personality of the store and give a glimpse of the merchandise and the way the merchandise is displayed to entice customers. Moreover, with special regard to store layout the author suggests good store presentation as the only alternative. The importance of store layout and design is discussed in depth by Davis and Ward (2007), whose study points out that, simple, creative and innovative layouts are attractive to customers. To attain this goal, good merchandising design skills are required (Shukla & Jain, 2008). The study emphasizes a lot on simplicity of walls, floors and fixtures to promote the store layout. With many studies in agreement that retail store layout planning is a complex task, the fundamental objective should be to maximize sales with customer satisfaction and minimize overall costs (Tucker, 2008, Sinha & Timmerman, 2008). The authors point on many factors affecting the store layout planning to include the arrival pattern of customers, building design, desired service level and merchandise.

Store layout can affect consumer's perceptions of a retail environment since there is a likelihood of approaching or avoiding the supermarket franchise or store. Sristavani *et al.* (2009) brings in another angle of store layout and design by positing that store layout refers to ways that stores use floor space to facilitate product delivery, promote sales and serve customers. The author provides that a prototypical store layout is divided into four different areas of selling, storage, personnel and customer space. Based on this, decisions are made on the basis of how much selling space is allocated, the type of interior and window displays used for various products. According to Shukla and Jain, (2008) the most important part of every store is the selling space. The author illustrates that it is necessary to properly deal with this space. Utilizing all the space will help to maximize sales. In this case, sufficient number of interior displays is essential to show store's merchandise to the shoppers.

2.3.2 Store Image

Baltas and Papa (2005) define the store image as the complex retail stakeholder's perceptions of the value addition process of the supply chain in totality. The authors define store image in terms of how a given retailer is perceived by consumers, frequency of consignment model use, delivery lead times and set up cost. Supermarket brand image has been regarded as an important antecedent in retail studies of store preference (Thakkar, *et al.*, 2005), for supplier negotiations (Zeitham, 2008), frequency of store visits (Pan & Zinkhan, 2006), supplier bargaining power, shopping expenditure and store loyalty. Martineau (2008) defines store image as the way in which the store is defined in the manufacturer third party logistics providers and shopper's mind.

Tucker (2008) point out that supermarket chain image is a combination of an individual's cognitive and emotional responses and stress that stakeholders' previous experience is very important as it is a combination of different images of the supermarkets stores. Studies by Singh and Kant (2008) concur that store image is a multi-attribute model which consists of both the more visible attributes and the less

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tangible attributes such as the atmosphere of the store (Davies & Ward, 2007). Zentes, Morschett and Shramm-Klein (2007) provide a list of store image dimensions, including product, service, price, distribution procurement strategy and supply network flows.

The authors adopt Ghosh's (1990) view as cited by Mandal and Desmukh (2008) and contend that store image includes, merchandise, store atmosphere, customer service, price, store selling and the general value addition of the supply chain in use. Magi (2005) summarize past studies of store image and provide the components of store image as suggested by various researchers and as defined by the supply chain value addition. Losch (2005) provides a more comprehensive classification of store image adopting a more logistical angle and adds more intangible store image dimensions into the list. This includes relationship management of suppliers and customers. Stevenson (2006) carried out a study on image dimensions in store studies in Taiwan and found out that branch network success in retail depended on the image created by its supply chain.

According to Vida *et al.* (2007) customers often evaluate and select retailers on the basis of the image they project. In this case, it is very important for retailers to cultivate and communicate the right store image of their supply chains. This could help attract more customers, award procurement bargaining powers and increase sales. Though customers usually hold a global image of a retailer, there are many components contributing to the holistic store image and each component weighs differently in different consumers' minds and in different customer segments (Losch, 2005). To get a better picture of how authors evaluate a store, Cox and Brittain (2005) cite merchandise, promotion, pricing policy, service and retail atmosphere. Kim, Allenby and Rossi (2006) in terms of quality, brand mix, price, internal and external environment while Zeithml (2006) view it in terms of atmosphere and logistical agility. The authors unanimously agree that customer services, store reputation, produce range, physical characteristics, flow of material and information are also pertinent. Store image dimensions of the supply chain, merchandise quality, store atmosphere, service quality have also been cited by Peck (2006) who also identified price, logistical strength, product, services, convenience and

physical environment. For Siggelkow (2007) merchandise, convenience, services, sales promotion, physical facility and store atmosphere are identified.

Lu (2006), support convenience (location, distribution centre affiliation), store facility and atmosphere, and service attitude and accuracy of cashiers. A study by Lee (2008) on multi format retailing identifies merchandise, logistical services, convenience, physical facility, promotion and store atmosphere. The new supply chain networks, together with the logistics service and price elements are aspects of store image introduced by international retailers and changing the Chinese consumers shopping behavior. Though store image is well explored topic in operations research and retail studies focusing on Asia, Lather and Kaur (2006) have already discussed the relationships of store image and related variables, such as merchandise, store layout and the facility inside store (shelves, tills, ridges and freezers)in other supply markets. According to the former authors, dimension and attributes of store image could take the form of merchandise, price, good quality, breadth and depth of choice, personnel service levels, knowledge of staff, service attitude of staff, efficient checkout service, convenient location, availability of parking and opening hours. The three major goals of a store should be: motivate the customer to spend money, project the image of the store and keep expenses to a minimum (Vida *et al.*, 2007). Hence, promoted and advertised items have to be found easily in identical supply chains. Even though the percentages of in-store purchase decisions vary according to type of store and product, store image is considered to be popular.

According to Jackson *et al.* (2011) nothing influences the shoppers' purchase decisions more than the store image and its supply networks. Most customers indicated that they bought items in particular stores since they have developed special attachment to the stores (Fox *et al.*, 2011). Mishra (2007) advices that it should be clear that using advertising or displays separately will not increase store image. The author recommends that valuable tools for creating a memorable shopping experience are mannequins, decorations, good layout, and innovative props. The selection of floor and wall

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coverings, lightings, colors, store fixtures, interior signage, and graphics powerfully impact the customers' shopping experience and contribution to image is also cited. A good display layout directs the customer's eye to the merchandise moves a viewer's attention from one part of the display to another and creates a permanent image. This image can also be created by techniques such as color, repetition, and lighting layout (Hino, 2010).

Linking the store to color, repetition, and lighting patterns, completed displays should be maintained and eventually dismantled. Different stores have different policies concerning the duration of displays. Employees should check them daily for damage, displacements, or missing item before shoppers could handle the merchandise. Some items have to be restocked or rearranged (Lu, 2006). The author illustrate that frequent display maintenance keeps the merchandise fresh and eye-catching to customers. Poor or unsatisfactory one brings negative image not only of the merchandise, but of the whole store and supply network. Carrying out a study on international retail networks, Kalubanga (2012) identified shape, physical appearance and outline to dictate store image strength. According to the author shape is determined by the props, fixtures, and merchandise in the display and exposition in a retail layout. Squares, cubes, circles, and triangles are examples of the shapes resembling display units. In this case displays that have little or no distinct shape are used in supermarkets and discounters to display large quantities and indicate similarity. Such displays have to highlight a theme or mood, such as the use of sports, work, or leisure equipment set up in a supermarket. All elements in a display must support and reinforce each other to create the influencing store image and that of the supply chain.

According to Li and Hong (2007), the store choice behavior is a comparison process whereby consumers evaluate various store attributes in terms of an overall perception of the supply chains and value addition process, leading to consumers of either selecting or not a particular store. How closely the store attributes and consumer perception store attributes match, determines the consumers and retailer relationship. Although store

image has been defined from various perspectives, Mishra (2007), illustrate that consumers form images of various stores based on the perceptions of attributes they consider important. This in turn determines the store from which consumers will shop. Such thoughts corroborate the close relationship between store image attributes and store choice.

Jain and Bagdare (2009) studied attributes considered by consumers in the selection of a supermarket chain. The study found that price, good retailer-buyer relationship and quality were the most important attributes consumers consider in creating a lasting image in a supermarket. The two authors appear to suggest that the store layout, services, fast checkout and special prices were some of the less important attributes. Contradicting the former, Andersons and Mittal, (2008) argue that in integrating the totality of an image, retailers needed fast checkout, friendly, courteous service, good third party logistics connections, agile procurement systems and pleasant atmosphere as complementary factors.

2.3.3 Retail Assortments

According to Laroche *et al.* (2005) the average inventory investment per square meter of the chain's selling area, is a surrogate measure of retail assortment. It also reflects the width of products, length of products, dispersion of attribute levels, related expenses and the number of supply chain outlets. This author explains that accurate, demand-driven planning is a critical component to creating profitable assortments. According to Jones (2010) miscalculations on assortment lead times can result in increased sourcing, manufacturing and transportation costs. This leads to depleting the retailer's margins before the merchandise even appear in stores. The author posits that retailers can circumvent these effects and boost their performance by adopting a collaborative assortment planning model with their suppliers, distribution centres, logistics providers and customers. With greater visibility into a retailer's assortment plan, manufacturers could optimize their factory plans to cut capacities, machinery configurations and

sequencing schedules (Kaur & Singh, 2007). This reform could ensure that the retailer's merchandise was manufactured on time and optimized transportation networks.

In the long run, this enabled retailers to ship goods to their distribution centers and stores through the most cost-effective transportation modes. Integrating the assortment planning process across all functions of the supply chain enables retailers to reduce the total cost of goods per item by: sourcing raw materials from the futures market for better prices, reserving capacity at factories, pre-packing merchandise in order to take advantage of cross-docking opportunities and ensuring inventory is positioned in the right locations across the supply chain to support multi-channel selling.

However, Fulberg (2005) study on consumer relationship found out that when there are a wide variety of units in a merchandise category, the chances for distinction were substantially reduced. Carrying out a survey study in India, the author found out that most customers rated high assortment as confusing buying decisions. The author illustrates this by using banks, eating joints, music shops and playing areas for children. Li and Hong (2007) studies concur with the former illustrating that with wider assortment customers could have a larger selection of merchandise to choose from, between product categories and thus have less leisure of selecting the merchandise which bests suits needs and provides satisfaction. A series of research conducted on product assortment also suggest that increasing expanded service requirements resulted in the sprout of stores and supermarkets that provide consumers with a one-stop shopping experience to offer wide assortment. In an effort to become more valuable to time-poor consumers, supermarkets now offer multiple services like pharmacies, money transfer, bill payment and banking options (Cordeiro, 2005; Jones, 2010; Fox, Montgomery & Lodish, 2011). In doing this, they also have to cater for varied consumer tastes within categories. The increased demand for ethnic, natural products such as fish fingerlings, millet, cassava, sweet potatoes, sorghum flour and ready-to-eat lines is also a way of expanding the assortment. Cullen (2008) study on intra and inter format competition identifies retail assortment as the single most influential variable affecting

the choice of retail chains across three formats: discount stores, supermarkets and conventional supermarkets. The author also found out that private label brands also known as store brands are another variation of merchandise assortment which retailers employ as an instrument to generate store differentiation, store loyalty and store profitability.

The growth of assortment has traditionally been attributed to two major causes. The first being the advertising of established store supply chains by retailers which serves as a draw card in enticing customers and attracting them to stores and the selling of new substitutes and complements. Secondly, established assortment brands typically have lower variable costs and thus potentially result in higher margins (Stevenson, 2006). In particular, it is essential for retailers to supply high quality merchandise and not just focus on offering cheap low-quality products. Siggelkow (2007) study survey on European retailers found that failing to provide the right combination of high quality and low prices may result in a merchandise assortment that is unsuccessful in creating satisfaction with customers.

Researches by Tamorski (2014) on barriers of retail chain collaboration illustrate that display format help customer make decision about the assortment to stock and how to collaborate with suppliers. Corroborating Fulberg (2005) studies, information overload literature has shown that increasing the number of product alternatives increases the cognitive load, thereby increasing consumers' decision difficulty (Rintama, Kanto, Kuusela & Spence, 2006). Studies by Lee (2008) on models for multi format retailers also appear to discourage large assortment by suggesting that large number of product alternatives also lead to consumer confusion and lower consumer satisfaction with the decision process. Increased cognitive effort further results in task-induced negatively affect, with consumers preferring to choose alternatives that are easy to evaluate and known. The decision difficulty, confusion, and negative affect associated with large assortments may lead consumers to walk away from the shelf display without purchasing products.

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Corroborating the authors, Wicker (2005) examined this dual attraction and difficulty characteristic of large assortments. The author found that large assortments initially attracted consumers to the shelf display, but the decision difficulty they encountered on trying to make a choice was demotivating, increased regret and lead consumers to walk away without making a purchase. Specifically, in a series of studies, Warfield (2006) compared consumer reaction to six options (small assortment) versus 24 options (large assortment). In a field study in an upscale grocery store, the author showed that consumers were more attracted to a sampling station when it offered 24 varieties of jam (60% of shoppers sampling) than when 6 varieties of jam were offered in retail chains (40% of shoppers sampling) even though extent of sampling was comparable in both situations.

Employing Cullen (2008) definition of retail assortment planning, specifying the set of products carried at each store and the inventory levels maximizing profit functions subject to fixed shelf space and retail selling space should always be treated as a fixed resource managed through assortment planning. Managing this space means making frequent decisions about which products to stock (assortment) and how much shelf-space to allocate those products. Although the average size of a store has continued to increase, it has not kept pace with the overwhelming number of new product introductions. In this case, retailers use a wide range of methods to choose assortments and allocate space (Fox *et al.,* 2011). This is because if not well planned, consumers sometimes will not find their favorite product in a store and settle for other similar product and supermarkets. This is called substitution and the willingness of customers to substitute without and within a category is an important parameter in assortment planning. Geetha *et al.* (2013) recommends the use of widespread scanner data and commercial shelf management models that allow retailers to quickly detect and eliminate unprofitable items. These commercial models typically use sales data, product and shelf dimensions to produce recommended shelf mixes.

According to Hasliza *et al.* (2013) retailers and manufacturers need to understand that consumer assortment perceptions are not simply a function of the number of items offered in the product category. The key principle is that consumer perception of assortment is also a function of the similarity of the items in the assortment, the size of the shelf display, the availability of preferred procurement systems and transporters (Benito *et al.,* 2006). In this case, the multi-dimensional nature of assortment perceptions implies that retailers could reduce the number of items offered without decreasing consumers' perceptions of assortment. The threshold for reducing SKUs without adversely affecting consumer assortment perceptions is likely to be dependent on several value addition factors in the supply chains. According to Fox (2014) key implications are: the inverse relation between the initial size of the assortment and the magnitude of SKU reduction on assortment perceptions. This means that large SKU reductions are more likely to decrease assortment perceptions when the initial assortment size is small rather than large. The author provides another perception of considering the link between distribution of SKU sales and reduction magnitude. If sales are uniformly distributed across products in the category, a significant reduction in SKUs is likely to make the favorite product unavailable for a large proportion of customers.

2.3.4 Branch Location

Retail branch location is often considered to be the most important element of the retail mix due to the time and expense needed to find the right location of stores while distributing goods and while finding products in a store (Warnes & Daniels, 2006). Adopting the land value theory, Sinha and Timmerman, (2008) illustrate that branch choice decision can be conceptualized as a problem of deciding where and when to shop for the consumer as corroborated by the land value theory, spatial and interaction theory. The authors observe that retail location entails location that has good entry and exit, better packing and next to distribution centers as well as supplier facilities. Although store choice is dependent on the timing of shopping trips, where consumers go to smaller

convenient retail stores for short fill-in trips and to larger store for regular shopping trips, there are various options available to the retailer for choosing the location of a store.

On a series of studies in retailing Srivastava (2008), Tucker (2008) and Talwar (2010) found out that the choice of store location depends on the customers' location distribution facilities, the supply chain's amount of collaboration efforts in the whole supply chain and the kind of merchandise procured. Consequently, a retailer has to choose among alternate types of retail locations. For instance, it may locate in an isolated place and pull customers to the store on its own strength or in retail crowded area (Cordeiro, 2005). The selection of a location site must reinforce the retailer's strategy and be consistent with the retail chain network, size of target market and the retailer's positioning. A critical factor affecting retail location is the agility of the supply chain involved in terms of distribution centres, third party logistics and procurement systems. According to Crosby (2005) study on rural based retail chains, location decision is strategic, long term and hence involves a large investment that is irreversible in nature and therefore need a lot of information search for predictive purposes. The author argues that if a retailer sets up his store and realizes that the location is not proper, he has either to go on suffering losses or close down.

Studies by Srivastava, Shervani and Fahey (2009) on retail business processes found out that in choosing a city or state to locate retail store, the area should be thoroughly searched before making final decisions. Location demographics from the local library, chamber of commerce or the Census bureau should be obtained alongside location of suppliers, competitors, third party providers and distribution centers so that the retailer comes to know his major success controls (Robinson, 2008). Nonetheless, retailers want to be located where there are many shoppers and next to cost effective supply chains and suppliers.

On a study on the growth of Indian retail industry, Satish and Raju (2010) found out that small retail stores may benefit from the traffic of nearby larger stores. The authors show that small retail store in first year of operation has limited information about distribution centres and third party logistics providers. In this case, retail compatibility with the retail and supply chains around an area can be the most important factor in the survival of the store. The authors acknowledge that the knowledge of the volume and character of passing traffic is always useful. When considering visibility, retailers look at the customer's location and the whole supply chain view point. In many cases, the better visibility retail store has less advertising and transport costs needed. According to Siggelkow (2007) specialty retail store located six miles out of town in a free standing building will need more marketing to customers and suppliers compared to a shopping store located in a mall.

Using Zimmerman (2010) studies on store sites, before signing a lease, retailers should understand all the rules, policies and procedures related to his proposed retail store location. The local county should be contacted for information on regulations regarding signage, loading and offloading. The author advices that retail operation restriction information affecting future plans and changes in traffic should be gathered. Retail location information provides valuable insights to help retailers decide among tentative retail locations. Halepete, Seshadri and Park (2008) carrying out a study on Wal-Mart in India also found out that other business in an area help or hurt a retailer's performance. The authors illustrate this by using gift shops and fashion boutiques. The author shows that gift shops and boutiques should be located near places like departmental stores, theatres, restaurants or places where lines of customer's form. Corroborating the findings Jain and Bagdare (2009) found out that high end boutique could succeed if located next to discount variety shops.

The importance of branch location to a supply chains should not be underestimated. First, location is typically one of the most influential considerations in a customer's store choice decisions. Most consumers shop at the supermarket closest to them. Secondly,

location decisions have strategic importance because they can be used to develop a sustainable competitive advantage. If a retailer has the best location, that is most attractive to its customers, competitors are relegated to occupying the second-best location (Zimmerman, 2010). According to Geetha *et al.* (2013) store location selection is viewed as a process with basic steps to be taken into consideration. The authors advocate that the first step in the choice of a retail branch location consists of describing and evaluating alternative trading areas.

 Thakkar *et al.* (2005) defines a trading area as a contiguous geographic area that accounts for the majority of a store's regional sales and customers. After a trading area is picked, it should be scrutinized regularly. A thorough analysis of trading areas provides the retailer with several benefits of branch location if the former is a flagship branch. These include knowing: the population size and characteristics, economic base, competitive situation, availability of store locations, regulations as well as the availability of suppliers in the area (Morine, 2007). At times, retailers also need to consider market pulling factors to specific locations. According to Tripathi and Sinha (2008), drawing new stores into historically underserved areas is paramount if initiated by suppliers and customers. Alongside research documenting the need for supermarkets in some areas, there has been considerable empirical information that highlights the significant advantages that suppliers draw from having retailers close. This includes information sharing and reduction of transport logistical costs.

Thakkar *et al.* (2005) notes that there is no formula for attracting a full-service supermarket to deserved markets. However, coordinated strategies that bring together suppliers, retailers and customers have been successful in attracting new stores (Singh & Saboal, 2006). In this case, selecting an appropriate site location for a retailer is critical to suppliers since poor location for any retail operation can cause failure. Supermarkets retailers must weigh the cost of the store's location with its potential for success. For examples, a location away from high traffic areas may be less costly but may reduce sales. Stores should not be positioned so as to depend on revenue from traffic along

small highways if there is a possibility that improved alternate routes will be developed (Singh, 2008). Corroborating previous views, Popkowski *et al.* (2007) summarizes by asserting that store location has a strong impact on a retailer's long run and short run planning. The author enumerates the variety of possible locations for supermarket branches including a freestanding unit, located in shopping mall outlet, or a multiple concept unit within an existing facility which supermarket retailers could maximise.

2.3.5 Store Brands

A retailers own brand or store brand is a product or service that either carries the brand or has a separate brand name controlled by the retailer (Laura, 2006). Store brands or private labels (PLs) are a permanent feature of competitive retail chain expansion all around the world. In Western Europe the store brands category is 20 percent of fast moving consumer goods (FMCG) sales (Nielsen, 2008). In the USA sales of store brands exceeded $50 billion in 2002 (Sinha & Uniyal, 2007). Dollar sales of store brands grew at an annual rate of 7 percent from 1996 to 2004, far outpacing the growth of manufacturers' brands (Baltas & Argouslidis, 2007). Currently, the majority of retail chains include store brands in their repertoire for at least some categories (Golledge, Souchon & Thirkell, 2010). Prior and current studies by Kan (2008) and Petty (2010) show that consumers buy store brands in the same way as they buy manufacturers' brands. During the process of buying and using store brands, people develop brand associations therefore providing an easy window for retailers to quickly respond to demand.

Hoch, Kim, Mortgomery and Rossi (2005) illustrate that many of these store brands associations are about how the brand performs in associations with other brands in the supply chains. A study carried out by Mishra (2007) on consumer patterns in India found that the role of these categories is to act as cues to retrieve the brand name or to evaluate the appropriateness of a brand. The authors further show that traditionally, store brands have been positioned as low price and good value for money. Their major selling point

has been their price advantage and as such store brands act as a cue to trigger a perception of value in the value chain (Jackson, Stoel & Brantley 2011).

However, recently retail chains have been launching premium, organic and healthy store brands, which are often not cheaper alternatives to national brands but help the organization to extend their supply chains backwards towards sources of resources (Vanquez & Bruce, 2005). However, Jackson, Stoel and Brantley (2011) citing the private label manufacturers association (PLMA) appear to imply that consumers receive conflicting messages to the once well-anchored perceptual positioning of store brands as something very different to NBs when premium ones are offered. Past studies on store brands by Hsueh, (2005) have examined the correlate of store brand proneness or private label brand attitude and found a positive relationship between store brands and operation success. Talwar (2010) study on store brands in Europe illustrate that the packaging should be designed to increase agility and movement while in stores, storage as well as customer convenience. The later further illustrates that within food packaging. Innovations may include single-serve portion sizes; oven-ready trays incorporated into the packaging and movement, ready-to-eat functionality, and other additions to packaging that increase portability and reduce warehousing costs of retailers. Carrying out a study survey on store brands, Gomez and Rubio (2005) found out that store brands packaging need to be designed for ease of opening, closing and durability while being moved in the stores as well as shop fronts. The author also proposes that green packaging and store brands reinforce image through packaging. In these cases, private label packaging reduces environmental impact, either by using an increased percentage of recyclable material, requiring less materials or changing the manufacturing process to be more environmentally.

Jacobs, Merwe and Kruger (2010) suggest that the store brand packaging must also be able to advertise supermarket retail chains. Green packaging in store brands need to stress on promoting customer appeal. Its designs must be eye-catching in order to compete, feature a greater surface area for images, a colorful appearance, and a unique

shape or profile that enables instant recognition as synchronized within the layout. Utmost, they need to target maintenance of product freshness portability and information provision compared to national brands. Hsueh, (2005) as cited by Wahome (2007) opine that store brands could only help the retailer if they could provide operations advantage to the retailer for easy coding, collaborations, quick responses due to long supplier lead times and cost reduction.

According to Bouzaabia *et al.* (2013) the idea of branding exposes consumers in a diversified choices and helps companies to provide one product in a branch out option to fulfill individual needs with different consumption behavior. In this case, retailers that are not lucky to sell mass products are forced to turn their face in to private labels, which are new group of products set up by the retailer own product line or facility. The concept of national brands, private labels and or store brand is on the rise among retailers. And they are like never before constantly fighting in the fierce battles in the hope of gaining and keeping their market shares (Basker, 2007).

According to Belwal and Belwal (2014) retailers have now recognized that a supermarket need not be just a place to buy a selection of brands. Instead the branch itself, its locations, its atmosphere, the service it offers, the range of goods and prices, can become the brand and retailers can begin to extract the benefits which investment in branding can bring. With the establishment of quality own label products, supermarket retailers are able to differentiate their stock from other retailers and manufacturer/ national brand products, while also holding a greater control over product quality, stock and price, (Li & Hong, 2007). Moore (1995), as cited in Laroche *et al.* (2007) furthers this argument, maintaining that these attributes make own label brands an effective tool in gaining competitive advantage over other retailers as the own label products provide the retailer with intangible, symbolic and differential characteristics that a competitor cannot imitate. Specifically, own brands are influential in attracting new customers and retaining current customers as they add depth, breadth to the retailers existing ranges and provide new experiences (Lehman, 2011).

Through offering store brands ranges different to competitors, retailers attempt to create a competitive advantage as exclusivity is built to the supermarket through its unique offering. It is the high quality store brands that provide differentiation, store loyalty, profitability and attraction of suppliers to manufacture the products for the retailer. Moreover, low quality store brands allow the supermarket to target the price sensitive segments (Mishra *et al.,* 2012). Contradicting former studies, Shukla and Jain (2008) argue that the impact of store brands on retailer-supplier bargaining power is not straightforward. In some cases, the existence of store brands may lead to increased retailer bargaining power through suppliers. Corroborating the former, Kline (2011) illustrates that a retailer's bargaining power is derived not so much from its scale, but from the outside options it would have if contractual negotiations broke down, and the outside options available to the supplier. According to Jones (2011) where a supplier has fewer alternative options, a retailer will have a stronger bargaining position which can also provide a very important route to the mass market for small suppliers, because the retailer rather than the supplier bears the costs and risks involved in developing the store brands.

Many of the biggest retail winners of the past half-decade, from Whole Foods to Aldi and Safeway to Costco and the leading dollar store chains, have positioned store brands as their linchpin strategy. According to Sivadas *et al.,* (2008) retail chieftains like Dillon, Burd, Mackey and Sinegal, have unstinting praise for the role store brands play in their chains' success. These big retailers are the ones introducing premium store brands (Gupta, 2008). Using the case of Prada, the author explains that customers for a Prada bag would want to have a Prada experience involving enjoying the luxury of the store's supply chain (Cuneo, Yague & Lopez, 2012). Moreover, in response to consumer demand, such retailers are freshening and extending existing private label networks and rushing to their shelves new lines of store brands that leverage evolving lifestyles and desirable product attributes.

2.3.6 Branch network expansion

All supermarkets exist in a volatile retail environment, where they act as value-addition intermediaries between geographically dispersed manufactures, supplier and individual customers who buy products. In carrying out this function, supermarket businesses acquire and assemble a wide assortment of goods from individual suppliers, prepare and distribute them through their branches and networks. In this case the fundamental task of a supermarket is to add value to products before they reach the final consumer. According to Kline (2011) supermarkets have adopted different approaches used to reach their customers. Most of them approach this from organic (expanding their floor space and branches) or externally through strategic alliances. During branch network expansion retailers ensure that there is collaboration of all of its branches to share complementary and common resources to achieve synergy and spread their risks. Supermarket branch network literature provides that supermarkets like other retailers target strategical optimisation of their branch operations by either opening more outlets or rationalizing available ones (Olfa-Bouzaabia *et al.,* 2013).

According to Craig *et al*. (2006) while pursuing their objectives supermarkets have also expanded their services using similar models to duplicate their operations. Cox and Britain (2006) succinctly capture the essence of branch network optimization and cross border supply chains. The authors show that global operations of manufacturing and logistics have made it easy for supermarkets branch networks to be expanded. According to the authors this has reduced transportation costs since retailers rely on 3PL and warehouse sales to cut distances and lead times. Global branch network expansion of retail structures take the form of opening branches, multi store portfolio (Carrefour, Delhaize le Lion) mergers, acquisitions (AB Vassilopous with Delhaize le lion) strategic alliances and on line retailing as necessitated by Ocado, EBay , Amazon and new information technology trends such as quick response, electronic data interchange and vendor managed inventory.

Zeitham (2008) regards branch network expansion as strategic when presenting outlets in relation to number of competitors, branches in the locality and retail saturation in the area. The author provides that while expanding branch networks, retailers need to employ the hoteling location theory by trying to follow competitors. Robinson (2008) concurs that although most retailers are viewed to own branch networks that are adaptive with emergent behaviour in relation to competitors, most supermarket branch network expansion initiative reliant on organic growth depend on proximity to distribution centres and core suppliers. While pursuing this strategy, the author argues that most global retailers control their branch network expansion by concentrating on the home market. The author employs the case of Wal-Mart which only derives 8.9% of its sales from the international branches. Shukla and Jain (2008) on their part front the economic profit as a percentage of the supermarket total sales. The authors provide that supermarkets are likely to expand to new locations after projecting the economic profits of the area. Such data is obtained from the projection of adjacent branches operated by the same retailer. The authors also provide that retailers characterised by high inventory turnover, low margins, wide assortments, central locations and specialist of category management are likely to expand their branch network using organic growth to replicate their successful formats.

Although Swinyard (2007) concurs with the former, He opines that branch network expansion initiatives are highly dependent on the model adopted by the retailer as based on factory out let operations or category specialist. The author faults the previous school of thought by using the case of Wal-Mart a retailer that does not follow the proximate branch network expansion model. The supermarket's approach is entering any high risk or distant market, provided the population is high. Moreover, the author posits that Morrison is unique in its branch expansion though it replicates Wal-Mart's branch extension targeting small communities of between 5,000 to 25,000 people and struggling not to close branches non performing outlets.

2.4 Empirical Review

The power of retail branch network is an important component of modern supply chain management and therefore needs emphasis as illustrated by the power that comes with retail control over consumers and the dominance of retailers in supply chain networks. The contribution of retail earnings to the total supply chain networks is major and therefore as supply operations carry out value analysis, a lot of emphasis needs to be directed to this level. Eaton and Lipsey (2005) show the importance of retail logistics of an outlet. The authors illustrate the importance of branch network as a key determinant on the success of retail business during expansion. In their model, the authors have included the logistics processes that are carried out within a retail outlet ranging from incoming dock to the checkout as well as out-store logistics. As part of the study, they interviewed 202 store managers from three different kinds of stores namely supermarkets, small hypermarkets and large hypermarkets and found that good treatment of key determinants could reduce branch expansion costs.

Geetha, Bharadhwaj and Sharma (2013) gave a detailed account of the evolution of retail supply chain management and the branch. The authors discussed a number of changes that are taking place in modern retail supply chain in direct response to the changing demands of consumers and the retail environment. They also explained how these changes prompted a number of implications for the management of the retail supply chains in relation to branch network expansion. Studies by Cox and Britain (2006), show that there are two kinds of views on the relationship between factors affecting branch network expansion. The first view is that variable attribute directly influence branch network expansion. The other is that the variables themselves affect branch network expansion but depend on how the variables were organized. Several studies support both views. Lather and Kaur (2006) focused on the variable attributes and found that product assortment and store location attributes were the most important attributes affecting branch network expansion.

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Jain and Bagdare (2009) argue that store image, store brands and layouts were correlated to branch network expansion but this depends on how they were strategically placed. Nevertheless, the debate over branch network expansion is an empirical issue regarding the arrangement, logistical application, type and timing when to use it. Most of the researches focus on discrete frameworks to study the expansion of supermarket branches and their role in supply chains (Bank *et al.,* 2008; Erdem, Oumil & Tuncap, 2009). The studies point out advantages of branch network expansion based on strategy. However, they use the information about the variables of retail branch network in a much more limited way by not showing how each variable affected branch network expansion. Moreover, most of these studies dwelt so much on the convention of following customers with self-service and looking at the demand for retail services at the exogenously level of chosen markets as opposed to the procurement and supply of resources.

For example, in Singh and Saboal (2006), Parker and Lehmann (2011) argue that the utility of a consumer involved in choosing a particular supermarket depends on different proxies that are supposed to be accounting for the geography of branches, like the number of branches per square mile in the market or the number of counties in which the supermarket has presence. The author whose work is closely related is Peck (2006). The author provides a specification of utility depending on modeled factors affecting suppliers, retailers, distribution centers and branches. Nevertheless, the author only includes the distance to the nearest and second nearest branch and other location variables. Most importantly the author performs an analysis using exogenously delineated supply and retail chains. Her hypothesis deviates from the truth that there might be consumers who live very close to some retail chains, but these chains are not in the consumers' decision set because they happen to be outside the consumer supply chains.

In another related paper titled "shopping malls' Lather and Kaur (2006) provides a general review of the relationship between supermarket operations, delivery and variables. The paper identified 8 variables and explained how improving retail operation delivery increased the supermarket propensity to capture suppliers and customers. In a study of United Kingdom supermarkets, they examined the value of strategic supermarkets and how they select the stakeholders and variable display. The authors interviewed a large sample of customers and managers who identified internal models necessary for supermarket success. The study identified supermarket assets, layout, capacity, location, image and relationship management as vital variables. On a sample of four supermarkets in the US, Kuruvilla and Joshi (2010) applying Lather and Kaur constructs found adequate documentation in the cases analyzed on the variables, although no information was presented on how the variables impacted on each other. The findings reiterated that branch network success variables were to be managed at all times for competitive advantages since there was clear evidence that the selection process and control, affected the supermarkets branch network expansion.

Research done on Macdonalds by Fulberg (2005) revealed that the problem caused by most organizations providing retail self-service and relying on branches emanated from the use of copied strategies without supply chain analysis. Corroborating the former, a study by Fox *et al.* (2011) in the Swedish retail chains observed that the administration of efficiency initiatives resided with the operation managers who were entrusted with ensuring the success of different branches. While there is obvious difference on the approaches, findings and location of these studies, there is exact focus on relationship between successful network expansion, strategy, variables and branch numbers.

The immediate inadequacy of focus can be offset by situational specific models explaining how the variables work to affect the whole. Moreover, whether employing the game theory or the location theory the researchers are not bringing out the expected models and how each variable will affect supermarket success. To this effect, Babbie (2010) clearly observes that successful branch networks do not simply occur; they are created and sustained by deliberate strategic action.

2.5 Critique of Existing Literature

Most scholars have highlighted the need to reduce business complexity through the use of strategic tools such as models. However, they have only focused their studies to retail variables overlooking explanations on how they relate to each other (Thakkar *et al.,* 2005). Moreover, Srivastava (2008) observe that the models and theories presented attempt to reduce a complex reality into a simplified and manageable form completely but suffer from a high degree of abstraction in terms of the assumptions of identical consumers and similar supply chains. Take the Central place theory that assumes consumers to be identical, and adopts the economist's optimizing man. It completely overlooks the fact shown by Golledge *et al.* (2010) that consumers do not always follow the exact precepts of central place theory. Therefore, the created retail and supply chains needed adaption based on environmental changes.

Corroborating the latter, Shukla and Jain (2007) argue that the summation retailer, a kind of group average of individual industry, have a considerable random element, is more unrealistic retailer and will win depending on his game plan. The inclusion of a random or stochastic element has been clearly recognized, and substantial attempts have been employed to interpret central place theory within a probabilistic framework. It is generally accepted that the central place theory's failure to accommodate change is its single most significant shortcoming. Talwars (2010) found out that the central place theory is predicated upon static, equilibrium-seeking assumptions and has become increasingly divorced from today's highly dynamic retailing supply chains. Authors such

as Thang and Tan (2007) believe that even where the focus is moved from products to stores there is an implicit assumption that the only factor differentiating one store from another is location, thus the authors ignores factors like the supply chain involved, good supplier retailer relationship and image. Studies by Jain and Bagdane (2009) on new format stores attempted to develop mathematical modeling theories incorporating multi-purpose shopping in the United Kingdom but recommended further studies to relate different variables to branch network strategies since they did not address how one variable impacts on the other to attain the overall success and control of group thinking about the variables.

2.6 Research Gaps

Most researchers (Thakkar *et al.,* 2005; Jain & Bagdane, 2009; Talwars, 2010; Fox *et al*., 2011; Parker &Lehmann, 2011)have concentrated their studies on the retail variables without showing how they relate to each other. Mishra (2008) conducted studies on different variables explaining Asda northward growth in Europe. The author failed to focus on root relationship among the variables identified. Studies by Dalwadi, Rathod and Kristensen (2010) on retail location in Ahmadad illustrate the role of assortment, pricing and store brands. Although there is great emphasis on retail mix elements and the use of self-organizing maps it does not explain how each variable impacted on one another and no clarity is presented on variable ranking or how they could be organized to success to any supermarket expanding or in need of a generic model to aid supermarkets pursuing branch network expansion. The research gap is amplified in the Kenyan context based on the fact that the role of supply chain expansion models remains new and models developed elsewhere for instance Data Envelopment Analysis(DEA) are unused. Moreover, no framework exits on how models could be designed.

2.7 Summary

Literature review and retail theories affirm that an increase in branch network implies that retailers are performing well and their retail chains are well aligned with the bigger supply chains. The studies analyzed have concentrated their studies on the retail variables without showing how they relate. Reviewed studies also concur that the identification of branch network expansion models and ability to use them largely depends on the industry, modelers and are vital. For strategy, the retailer must first determine its supply chain players and model validity. Nevertheless, discussed studies have highlighted the advantages of coming up with appropriate generic models that have some competitive edge.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology used in the study and provide a general framework used in the research. The chapter presents details of the research design, target population, sample and sampling procedures. It also gives a description of research instruments, validity, instrument reliability, data collection procedures and data analysis techniques.

3.2 Research Design

The study used a mixed research design particularly the concurrent triangulation design where both qualitative and quantitative data were collected and interpretation was done concurrently. Since there are multiple sources of data triangulation was permitted. Mixed research approaches allow the researcher to gain in breadth and depth of comprehension and corroboration. It also allows the possibility of triangulation: the use of several means (methods, data sources and researchers). Triangulation allows identification of phenomena more accurately using different methods and techniques. The descriptive and exploratory variants were used. Descriptive since it intended to describe practices of the five major supermarkets in Kenya. Exploratory since it aimed at formulating a working model. Punch (2005) notes that a research design involves all issues involved in planning and executing a research project. Kerlinger and Lee (2007) define a research design as a plan and structure of investigation, conceived so as to obtain answers to the research questions. A research design is a plan of moving from the research question to the conclusion (Kothari, 2008).

3.2.1 Research Philosophy

The study employs the positivism research philosophy. The philosophy believes in stability of reality. According to the philosophy as manipulated by Kerlinger and Lee (2007) reality can be observed and described without interfering with underlying phenomenon. In this case, hypothesis developed from existing theories could be tested by measuring operational realities. Based on observed, explained realities and drawn interrelationships, predictions are made upon translating underlying concepts into measurable forms. Halfpenny (2005)citing Ryman and Bell (2010) asserts that this philosophy investigates organization happenings through scientific measurement of units and system behaviors. The choice of the research philosophy is based on the fact the current study seeks to investigate strategies of major supermarkets and replicate the practices.

3.3 Target Population

The population for the study comprised of employees of five major supermarkets (Nakumatt, Tuskys, Uchumi, Ukwala and Naivas) working in operations and key decision areas. The inclusion criteria where Kenyan supermarkets having more than five branches and with an annual turnover of 0.5 billion (Euromonitor International, 2014).

3.4 Sampling Frame

A sampling frame is a listing of the accessible population from which the sample is drawn. According to (Kothari, 2008) sampling frame is the set of units from which a sample has been drawn. The sample frame for this study was 5 Supermarkets with branches in Kenya. The distribution of their 1200 key operations staff is distributed as follows.

Table 3.1: Distribution of Operations and Key Area Employees in the Selected Supermarket in Kenya

Supermarket	Employees
Nakumatt Holdings Ltd.	252
Tusker Mattresses Ltd. (Tuskys)	440
Uchumi Supermarkets	200
Ukwala Supermarket chains	80
Naivasha Self Service Stores Ltd	228
	1200

Source: (Euromonitor international, 2014)

3.5 Sample and Sampling Techniques

The sample selected for this study was selected using the slovin formulae as employed by Jankowicz (2014). It consists of 300 respondents. Ryman and Bell (2010) defines a sample as a subject of specific population. The process of sampling involves the selection of a group of individuals or elements from a target population. The sample can then stand for the whole population (Anderson, 2008). The sample of the researcher should depend on the requirements of the products, field, its objectives and funds available. The sample selected for this study was derived using the Slovin formulae.

$$n = \frac{N}{1 + N(e)^2}$$

Where n = Sample Size

N = the total population

1 = constant

e = limit of sampling error

Assuming a sampling error of 0.05, this can be computed as shown below:

$$n = \frac{1200}{1 + 1200(0.05)^2}$$

$$n = \frac{1200}{1 + 3}$$
$$= 300$$

For structural interpretive modeling, sample population between 200-400 respondents is reliable and free from bias (Thakkar *et al.,* 2005; Kline, 2011; amorski, 2014).For the sake of this research two main methods of sampling techniques were employed. These are proportional stratified and simple random sampling. This was done to get a fair representation of the selected supermarkets.

Table 3.2: Distribution of the Selected Supermarkets Respondents Using Proportional Stratified Sampling

Supermarket	Respondents
Nakumatt Holdings Ltd.	63
Tusker Mattresses Ltd. (Tuskys)	110
Uchumi Supermarkets	50
Ukwala Supermarket chains	20
Naivasha Self Service Stores Ltd	57
	300

According to Mugenda and Mugenda (2006) the biggest advantage of proportional stratified sampling is that it can sample well heterogeneous populations with characteristics related to topics of study. Simple random sampling ensures equal probability of selection of study objects being chosen for representative learning and replication of lessons and strategies to help industries as gained from samples (Kothari, 2008).

3.6 Data Collection Instruments

Secondary data was collected using supermarket organization reports. This report provided information on numbers of branches opened, market share of branches and net economic profits. These sources are preferred since they provide up to date information of current information and how it was done. Primary information was sought through a Likert framed questionnaire. Questionnaires are advantageous as a large numbers of respondents could be reached with ease. They also provide quantifiable answers that are easy to analyze. The instruments targeted to collect responses on different variable statistics.

3.7 Data Collection Procedures

This is a set up plan on how to introduce the study to potential respondents and how to follow up to ensure maximum response from the chosen Sample (Mugenda, 2009). An introductory letter was drafted by the researcher and qualified by Jomo Kenyatta University of Agriculture and Technology. The respondents were requested to complete questionnaires either on their own or in consultation with other professionals in the supermarkets. Three hundred questionnaires were distributed. The drop and collect approach was employed. The researcher re-assured the respondents of the confidentiality of their feedback. This encouraged the respondents to be honest and maximally contribute to the research. Secondary data was collected through supermarket annual reports.

3.8 Pilot Testing

Pre-testing of the initial drafts of the questionnaire helped revise and modify the initial drafts. The questionnaires were tested on employees of Nakumatt Mega along Uhuru highway. Comments for improvement were addressed in respect to the structure of questions, wording and its formats. According to Newman and Cullen (2005) a sample of 1-10% is representative for pre-tests. The reliability of variables waspretested by

applying Cronbach's alpha coefficients on the responses from experts. The coefficient alpha, developed by Cronbach (1951), as cited by Newman and Cullen (2005) is the most commonly used index for estimating the reliability of measurement instruments such as scales, multiple item tests, questionnaires, or inventories in all the fields of research such as psychology, education, statistics, operations management, medicine, nursing, political science, and economics (Chuang,2005). Alpha is easily interpreted and ranges from 0 to 1. At the lower extreme, the inter-item correlations are zero and at the upper extreme, there is a perfect correlation among the items. The formula according to Carmines and Zeller (1982) is given by $\alpha = \dfrac{a}{(a-1)}\left[1 - (a/2b)\right]$, where, a= the number of items or variables in the composite score and $b = \sum_{i=1}^{n} r_{y_i}$ =The sum of the correlations among the items in the composite score, y_i= i^{th} items correlation. Many researchers consider an alpha coefficient at least 0.70 or more to be adequate for the scale (Mugenda, 2009). The reliability coefficient benchmark was set at 0.70.

The degree to which the study accurately assessed the specific concept the researcher attempted to measure was done through validity testing. According to Saunders, Lewis and Thornhill (2007) there are two aspects to validity: what is measured and how consistently it is measured. Its attempts are made to ensure that the construct, content and face validity are present from the very beginning, that is, from the time of defining the tools and usage time. Construct content and face validity of the instruments were ensured by asking for suggestions from the 30 randomly selected respondents from the pilot test. Expert opinion from the department of entrepreneurship, my supervisors and colleagues were sought. This ensured the instruments were not biased and the appropriate language is used. This assisted in checking the adequate coverage of all objectives of the study, to ascertain the layout and formatting of the instruments.

3.9 Data Analysis and Presentation

Descriptive analysis was done using SPSS software to analyze the questionnaire data in terms of response tallies, mean and standard deviation. The respondents were asked to provide their opinions on the importance of branch network expansion variables based on likert type of questions with scores of 1-5. To determine the relative ranking index (R.I.I) of the factors, these scores were transformed to importance indices based on the formula:

$$R.I.I = \frac{5n5 + 4n4 + 3n3 + 2n2 + 1n1}{5N}$$

Where:

$n1$: the number of respondents for strong disagreement.

$n2$: the number of respondents for disagreement

$n3$: the number of respondents for ambivalence.

$n4$: the number of respondents for agreement.

$n5$: the number of respondents for strong agreement.

Moreover, inferential analysis employed the Interpretive Structural Modeling (ISM) to extract patterns from data. Further Data analysis was done by the MICMAC analysis technique(Durieu, 2005: Singh et al., 2005 &Ali, Kapoor & Moorthy, 2010). The generic model to show the relationship between the variables was employed. The generic form is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where:

Y: Branch network expansion

β_0: constant

β_1, β_2, β_3, β_4 and β_5 are regression coefficients of the independent variables.

X_1: Store Layout Design

X_2: Store Image

X_3: Retail Assortment

X_4: Branch Location

X_5: Store Brands

ε : Error term

The values of the mean, standard errors of mean, trimmed mean, variance and rank for each variable were tabulated in frequency tables, bar charts, pie charts, scatter plots, a self-interaction matrix. The proposed model was presented in the form of structural self-interaction matrix and a diagraph since they are the most appropriate presentation formats for modeling approaches employing interpretive structural models (Malone, 2005).

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents data analysis, findings, discussions and interpretations. The purpose of the study was to establish a model explaining supermarket branch network expansion in Kenya using the interpretive structural model. The findings are presented in two major thematic areas; demographic information and variable analysis.

4.2 Response Rate

A total of 300 questionnaires were distributed to the target population. One hundred and eighty-three (183) questionnaires were returned. This represents a response rate of 61%. The response rate was satisfactory and was deemed representative. Moses and Karlton (1971) as cited by Ahmad, (2009) assert that a response rate above 30% is good and acceptable when the research uses survey questionnaires. According to Mugenda and Mugenda (2009) a response rate of above 50% is excellent. Other studies employing the interpretative structural modeling methodology and a response rate above 50% include studies by Thakkar *et al.* (2006) and Sagheer *et al.* (2009) with response rate of 52% and 67% respectively.

Table 4.1: Response Rate

Supermarket	Questionnaires distributed	Questionnaire completed	Response Rate
Nakumatt	63	50	79%
Tuskys	110	68	61%
Naivas	50	35	58%
Ukwala	20	12	60%
Uchumi	57	18	30%
	300	**183**	**61%**

All the supermarkets had a response rate of 30% and above hence the conclusions drawn from the current study are representative. Nakumatt supermarket had the highest response rate (79%) followed by Tuskys (61%), Ukwala (60%), Naivas, (58%) and Uchumi (30%).

4.3 Demographic Characteristics

This section covers the demographic of the target population. It was aimed at ensuring that there was no bias in the manner to which respondents were selected to participate in the study.

4.3.1 Designation of Respondents

The researcher sought to get reliable information from the employees that were more conversant with supermarket operations and strategy. This is shown in table 4.2.

Table 4.2: Designation of Respondents

Job Designation	Number of respondents	% of total respondents
Team Leader/Branch Manager	36	19.7%
Floor Leaders	56	30.6%
Stores Supervisor	38	20.8%
Central Warehouse Supervisor	21	11.5%
Roving Sales supervisors	32	17.4%
	183	**100%**

Majority of the respondents were floor leaders whose total number was 56. This was closely followed by stores supervisors at 38, roving sales supervisors at 32 and Central Warehouse Supervisor at 21.According to Bowman and Ambrosini (1997) as cited by

Kovil (2008) data collected from one class of top managers may not give a clear picture about a firm's strategy. The response from different operations managers indicates that there was fair representation of all decision areas in supermarket operations.

4.3.2 Duration of Branch Operation

The study sought to establish how long branches had been in operation. This is shown in figure 4.1.
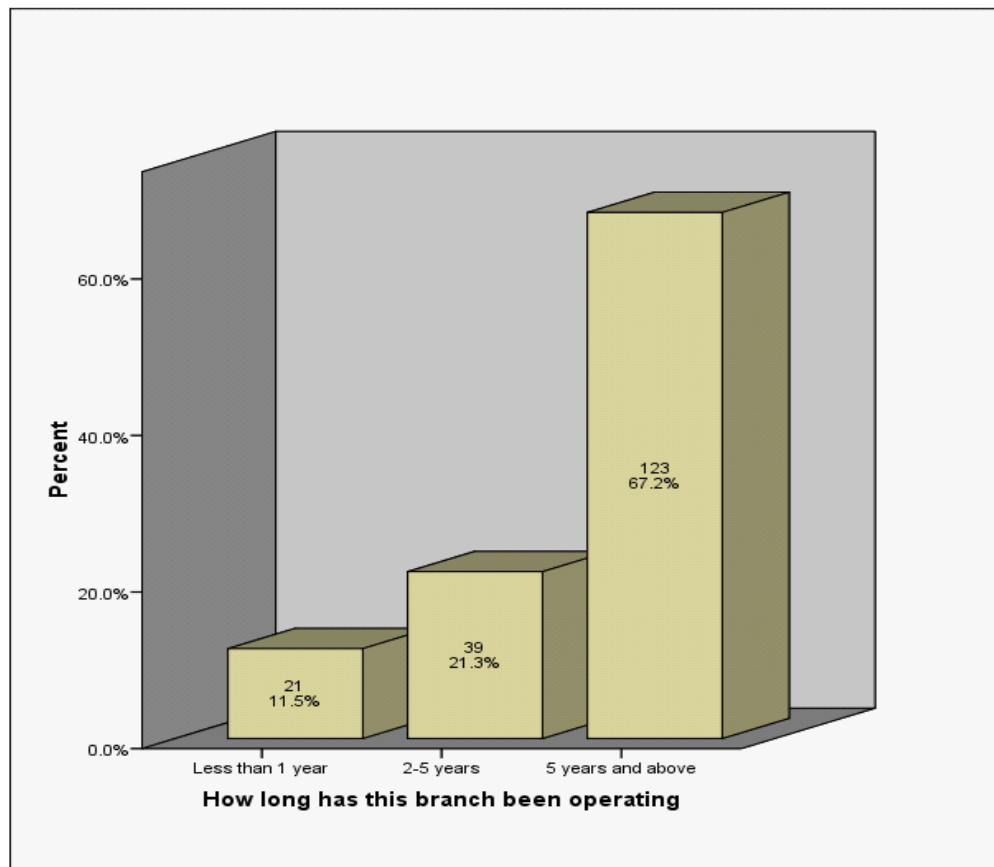
Figure 4.1: Duration of Branch Operation

The number of years that Supermarket branches had operated was sought. Sixty-seven point two (67.2%) percent of the respondents rated their branches to have operated for a period more than 5 years. Twenty-one point three (21.3%) percent had operated for 2 to 5 years while 11.5% for less than 1 year. The duration of branch operation could be used to infer how the management of that branch understood the operations dynamics of that particular location.

4.3.3 Experience of Respondents

The study sought to establish how long the respondents had worked in the supermarket. The seniority analysis shows respondents experience which could be used to check on their acquaintance with supermarket operations. This is shown in Table 4.3.

Table 4.3: Length of Service

	Frequency	Percentage
Less than 1 year	27	14.8
2-5 years	33	18.0
5 years and above	123	67.2
	183	**100**

Sixty-seven point two percent (67.2%) of the respondents indicated to have been working in the supermarket for a period of above 5 years. Eighteen percent indicated to have worked for a period between 2 to 5 years while 14.8% indicated having worked in the supermarket for a period of less than a year. The length of service could be used to infer the experience and knowledge of the supermarket culture and strategy. The long period of work in supermarket response rate indicates that the data received for this study is reliable.

4.3.4 The Target Market of Supermarkets

The study sought to establish the market segments that supermarkets targeted. The results are presented in Table 4.4

Table 4.4: Target Market for Supermarkets

Income levels	Frequency	Percent
High income	9	4.9
Mid income	28	15.4
Low income	18	9.8
All income groups	128	69.9
Total	**183**	**100.0**

Sixty-nine point nine percent (69.9%) of the respondents indicated that supermarket branches targeted all income groups. This was followed by middle income, 15.3%, low income at 9.8% while high income was rated the lowest with 4.9%. The current study corroborates studies by Hansen *et al* (2011) which found that supermarkets applied medium quality and medium price to satisfy a combination of both high and low income customers. Profiling ASDA's activities, the authors suggest that retailers providing medium quality at medium prices provide fair package expressed as value and measured by quality and price. Although the current study has a high rating for all income groups, studies by Wood and Browne (2007) and Sandberg (2014) reveal that consumers with high quality and low price have a high marginal propensity to consume and provide justification for high quality and high prices or low quality and low prices.

4.4 Suitability of Supermarkets Research Data

Before performing factor analysis, the suitability of data must be tested. This can be done by running two measures; Kaiser-Meyer-Olkin (KMO) measure of sample adequacy, and Bartlett's measure of sampling sphericity (Pallant, 2007).

Table 4.5: Kaiser Meyer- Olkin and the Bartlett's Tests of Sample Adequacy and Sampling Sphericity

Variable	Item number	KMO	Bartlett's
Store layout design	7	0.610	0.000
Store image	9	0.727	0.000
Branch location	6	0.654	0.000
Retail assortment	8	0.606	0.000
Store brands	5	0.621	0.000
Branch network expansion	7	0.630	0.000

According to Moradi, Hadi and Zandieh (2013) the Kaiser-Meyer-Olkin (KMO) test of sample adequacy should provide values above 0.6.Nevertheless, Field (2005), Mahmood and Nafali (2013) also reveal that values above 0.5 are used as benchmarks. Sphericity means that the data are uncorrelated. Factor analysis however assumes that sets of variables are associated with each other.In Bartlett test a high chi-square and low P value less than 0.05; indicate a significant relationship between items. This suggests that the data are suitable for factor analysis. According to Hair *et al* (2008) the benchmark for the

Bartlett P value is 0.05.The current study employed KMO of 0.6 and a significance value of 0.05 as benchmarks.

4.4.1 Reliability Coefficients of all Variables

The scale construct were tested before conducting factor analysis. The goal was to obtain a concise scale whose items would be meaningful to the research. Hair *et al.* (2008) note that when the alpha score is higher, the reliability of the test will be greater. Nevertheless, there is no general agreed cut-off. In some studies, the removal of a variable leads to loss of vital information, and the affected variables are retained (Nyengane, 2007). Researchers commonly use an alpha value of 0.70 and above (Nunally, 1978 as cited in Garson, 2005). Garson (2005) argues that within social sciences, 0.70 or higher alpha score for a set of items is considered a good benchmark scale. Nevertheless, in exploratory works the authors indicate that 0.5 is the benchmark mostly used.

Table 4.6: Reliability Coefficients of all Variables

Variable	Number of items	Cronbach's alpha
Store layout and Design	7	0.711
Store image	9	0.760
Branch location	6	0.769
Retail assortment	8	0.743
Store brands	7	0.755
Branch network expansion	6	0.732

Zero point seven (0.7) was used as the minimum accepted level. This decision is accepted by literature as many studies use reliability values ranging from 0.5 to 0.96 in many industries (Jabnoun & Khalifa 2005; Akbaba, 2006; Caro & Garcia 2007; Chowdry & Prakas, 2007).The six items had an acceptable reliability coefficient of 0.7 and were therefore retained as shown in Table 4.6.

4.5 Branch Network Expansion

4.5.1 Factor Analysis for Branch Network Expansion

Branch network expansion had a total of six (6) items. This information is presented in Table 4.7.

Table 4.7: Factor Analysis for Branch Network Expansion

Item	Component
Number of branches in that locality	0.714
Sales to population increase	0.647
Pursue of competitors	0.573
Net economic profit as a percentage of the supermarkets total sales	0.502
Branch transactions as ratio of sales of the whole	0.449
Retail saturation level of the location	0.411

Hair *et al.* (2010) guidelines on factor loads of significance based on sample size propose loads of 0.35 for a sample size of 350. Citing Garson (2005), Mahmood and Nafali (2013) confirm that factor loads lower than 0.4 communality coefficient did not interpret the factors. The study employed 0.4 as the benchmark. All the items were confirmed since their factor loads were more than 0.4.

4.5.2 Number of Branch Controlled by the Supermarket

The study sought to establish the numbers of branches maintained by the stores. The findings are presented in Table 4.8.

Table 4.8: Number of Branch Controlled by the Five Supermarkets

Number of branches	Frequency	Percent
5 and less	6	3.3
6-10	7	3.8
11-20	12	6.6
21-30	4	2.2
31-40	11	6.0
41-50	32	17.5
Above 50	111	60.6
Total	**183**	**100.0**

Sixty point seven percent (60.7%) respondents rated that their stores had more than fifty branches (Tuskys), 17.5% between 41-50 branches (Nakumatt) and 6.0% between 31-40 branches (Naivas). The least rates were 3.3% (Ukwala) and 2.2% (Uchumi) representing less than five and between 21-30 branches. The current study corroborates studies by Artz and Store (2006) on Wal-Mart expansion and its effects on food stores indicating that most food stores opted to operate with more than 10 branches. Contradicting the above findings Mamoun and Akrous (2012) citing Greenland (1995) indicate nonexistence of a benchmark on branches number for retailers when expanding. Their study recommends that as long as stores improved branch performance through branch opening in underrepresented locations and closure of non performing ones, value addition could accrue.

4.5.3Net Change in the Number of Branches

The study sought to establish the number of net branches that the store had established within a period of five years. The study findings are presented in Table 4.9.

Table 4.9: Net Change in the Number of Branches

Statement	Frequency	Percent	Cumulative Percent
Net change of more than five branches	41	22.4	22.4
Net change of less than five branches	142	77.6	100.0
	183	**100.0**	**100.0**

Seventy-seven point six percent (77.6%) of the respondents indicated that their stores had opened less than five branches (Nakumatt, Uchumi & Ukwala) while 22.4% (Naivas & Tuskys) indicated more than five branches within the last five years. The study findings corroborate Clement *et al* (2011) study on supply chain channels which indicate that while expanding retail branches retailers calculated moves were vital. Their study revealed that the agility of network expansion depended on a number of factors such as the expansion model and demand requirement of a region. Previous studies by Sengupta (2008) carried out in the Indian retail market had indicated that retailers were increasing their retail space, consolidating, expanding their presence at a feverish pace of 0.8% penetration making the pace good for established and large retailers.

Table 4.10: Respondents Opinion on Branch Network Expansion

Statement	Strongly disagree	Disagree	Ambivalent	Agree	Strongly agree	Total
Population density per store	0.0%	4.4%	2.7%	79.8%	13.1%	**4**
Net economic profit percentage in relation to total sales	3.3%	4.9%	8.2%	76.5%	7.1%	**4**
Retail saturation level	1.1%	3.3%	8.7%	74.9%	12.0%	**4**
The number of branches in a locality	7.7%	3.8%	4.4%	71.6%	12.6%	**4**
Sales increase to population levels	1.1%	.5%	3.3%	83.1%	12.0%	**4**
Branch transactions and sales of the whole supermarket	.0%	1.1%	4.9%	73.2%	20.8%	**4**
Pursue of competitors strategy	5.5%	4.9%	1.6%	76.5%	11.5%	**4**
Average	**2.7**	**3.3**	**4.8**	**65.6**	**12.7**	

On whether population density information was vital in branch network decision 79.8% of respondents agreed, 13.1% strongly agreed while 4.4% disagreed. The current study findings corroborate Gagnon and Chu (2010) study which employed geographical information systems as platforms for identifying population data. Building on previous studies by Sellers-Rubio and Mas-Ruiz (2007) the study indicated that population data was vital for rollout and relocation decision of branch extension. However, their study indicated that the population information could be attained through the operations and the performance of individual outlets in the retail supply chains as guided by the cluster and factor analysis of the location.

The study sought to establish whether the number of branches controlled by a warehouse or distribution center in the locality was vital for branch network expansion. Seventy-one point six percent (71.6%) of respondents were in agreement, twelve point six (12.6%) strongly agreed while in totality 11.5% disagreed. Corroborating the current findings Siebers (2011) concurs that the number of branches controlled by a warehouse provides competitive advantage to the retailer. Citing global leaders Carrefour, Walmart, Metro, Tesco and Evado in the Chinese market, Siebers (2011) study opines that these retailers have been able to survive the Chinese market through branch supply penetration powers and limiting particular distribution centers to serve not more than ten branches.

On whether sales volume relationship to population affected branch network expansion 83.1% of respondents were in agreement, 12.0% strongly agreed while 1.6% were in disagreement. The current study results corroborate studies conducted by Even-Erdomus *et al* (2010) which found out that population increase in characteristics, accessibility, competition and establishment of business network motivated branch network expansion to satisfy specific needs and new branch establishment in other areas to reduce over capacitated branches. The author suggests that the corresponding growth of sales volume against the population growth needed to be constant.

The study sought to establish the extent to which branch transactions relationship to sales information was vital in expansion decision making. Seventy-three point two percent (73.2%) respondents were in agreement, 20.8% strongly agreed while in totality 1.1% of the respondents disagreed. The results corroborate study finding of Belwal and Belwal (2014) carried out in Oman. Conducting a study on Oman supermarkets using the Tobbit model of efficiency, their study found that branch transaction was related to total branch sales and that larger retail groups were more efficient than smaller ones. While making general finding about efficiency Belwal and Belwal (2014) study found moderate relationship between market share and sales but significant relationship between location and sales levels.

On whether competitor strategy determined branch network moves, seventy-six point five percent (76.5%) respondents indicated that this was true, 11.5% strongly agreed, 4.9% disagreed while 5.5% strongly disagreed. This finding corroborates the study conducted by Fawlett *et al.* (2015) which found that stores located their branches next to competitors. Further corroborating the agglomeration location theory, Fawlett *et al.* study (2015) study found out that stores using similar strategies were likely to be found proximity of each other. The results found by latter works by Kamau (2015) would appear to refute the current intuitive view as illustrated the strategy employed by Uchumi supermarkets that are opening up new branches in locations were they had closed even if not adjacent to competitors.

4.5.4 Normality of Branch Network Expansion in Kenya

Following the descriptive analysis, normality of the dependent variable was conducted. For inferential analysis to be done such as correlation, regression or related linear techniques, the dependent variables should have normal distribution. In case the dependent variable is not normally distributed, then normality has to be sought before proceeding with further analysis (Antony, 2007). Branch network expansion was subjected to normality test to check if the data was normally distributed or not. The testing of normality was conducted using Kolmogov Smirnov and Shapiro Wilk test. The test done employed an alpha of 0.05 as a benchmark (David, 2012).The hypothesis is stated as;

H_o; The data is normal

H_1; The data is not normal

Table 4.11: Checking for Normality of Branch Network Expansion

Kolmogov Smirnov				Shapiro Wilk		
	statistic	df	sig	statistic	df	sig
Branch network expansion	.083	183	.200	.0811	183	.803

Table 4.11 indicate that the P value of normality is greater than 0.05. The study failed to reject H_o and a conclusion was made that branch network expansion is normally distributed. This test is sensitive to the sample sizes. In this case its results should be used in conjunction with visual inspections. Field (2005) advises against over relying on non-normality but plotting data to make informed decisions based on converging evidence. This was followed by the establishment of the Q-Q plot. The Q-Q plot is an excellent way of observing whether the data deviated from normal. According to David (2012) for a variable to be normal distributed the cases should lie close to the 45° line.

Normal Q-Q Plot of BRANCH NETWORK EXPANSION
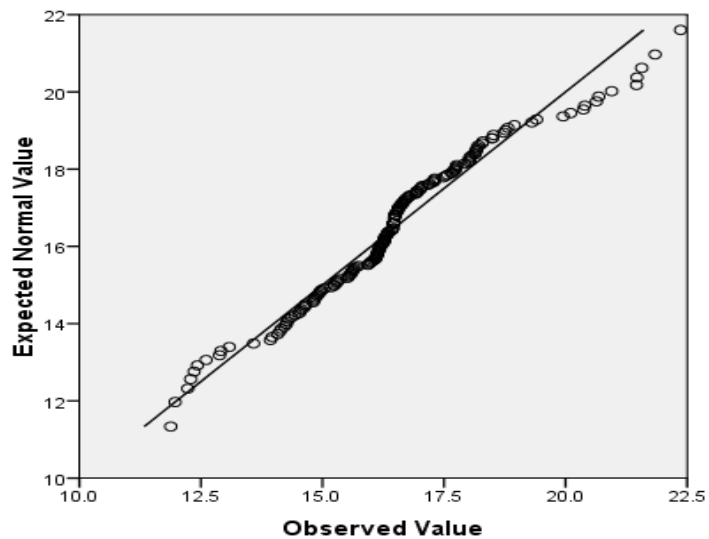
Figure 4.2: Q-Q Plot of Branch Network Expansion

The observed values of branch network expansion lie close to the line. This can be inferred that the data came from a normal distribution.

4.5.5 Checking for Outliers

Further exploratory graphics was used to show the distribution of the data set. The Tukey test of outliers was employed. This shown by Figure 4.3
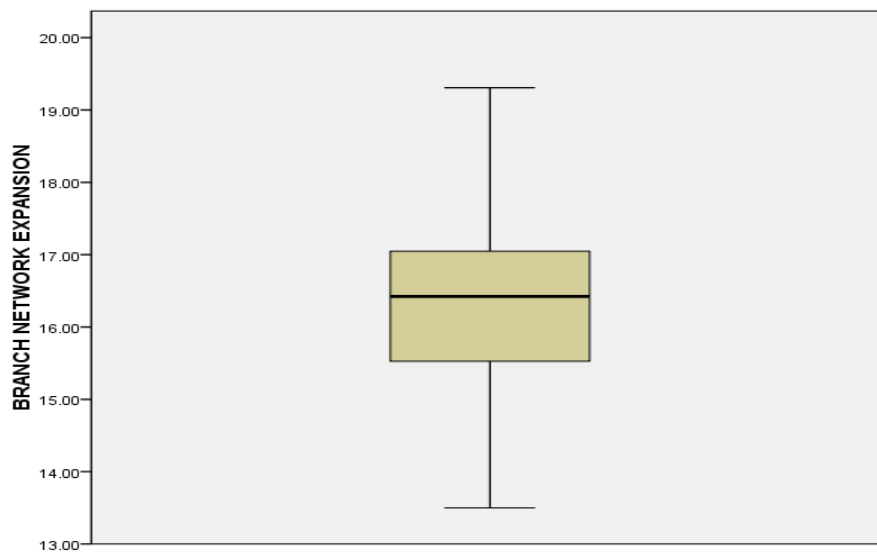
Figure 4.3: Box Plot Test of Outliers

The plot indicates absence of outliers with a maximum of 19.2 and a minimum value of 13.4.

4.5.6 Homoskedasticity

The Breush-Pagan test statistics was used to detect the presence of heteroscedasticity. Heteroscedasticity is a violation of the requirements of OLS. The consequence of heteroscedacity is that the OLS is not blue. According to the results if the P value is

greater than 0.05 we do not reject the null hypothesis of homoscedacity. Heteroscedasticity can be corrected either by using White's heteroskedastic-consistent covariance matrix estimation or employing robust standard error (Padachi, 2006; Greene, 2012; Verbeek, 2012).The results are shown in Table 4.12.

Table 4.12: Breusch- Pagan Homoscedasticity Test

Breusch- Pagan	df	P value
5.8967	5	0.3164

Comparing the Breush-Pagan test statistic 0.3164 to the benchmark of 0.05, the study failed to reject H_o that branch network expansion is homoscedastic.

4.5.7 Multicolinearity

The degree of Multicolinearity was tested by calculating the variance of inflation factors (VIF) for each coefficient. The test statistics is used as a diagnosis tool to detect the seriousness of a MultiCollinearity problem (Gujarati, 2006).There is no consensus of Multicolineality for VIF cut off points but a high tolerance and low VIF value indicate a low degree of multicolinearity. Field (2005) proposes that a VIF greater than 5 is considered evidence of Multicolineatrity. Hair, Carto and Pinto (2011) propose a benchmark value of 0.2 tolerance.

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Table: 4.13: Tolerance and Variance Inflation Factor for Variables

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	4.555	.671		6.786	.000		
STORE LAYOUT	.137	.022	.295	6.217	.000	.874	1.145
STORE IMAGE	.126	.022	.294	5.828	.000	.771	1.297
RETAIL ASSORTMENT	.123	.024	.256	5.196	.000	.809	1.236
BRANCH LOCATION	.174	.028	.320	6.232	.000	.746	1.341
PRIVATE LABELING	.086	.028	.155	3.050	.003	.767	1.303

From table 4.13, it can be confirmed that Multicollinearity is not an issue since the VIF values are all far below the critical value of five and the tolerance values are not below 0.2.

4.5.8 Auto Correlation

The Dublin-Watson test for autocorrelation was applied. Ideally, the values normally range between 0 and 4. The rule is that the residuals are uncorrelated if the DW is approximate to 2.

Table 4.14: Dublin Watson Autocorrelation Tests

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.997	.994	.994	1.27156	1.898

The obtained value is approximately to 2 and this is evidence of lack of serial correlation.

4.6 Store Layout and Design

4.6.1 Factor Analysis for Store Layout and Design

Garson (2005) defines factor loading as the correlation coefficient between the items and factors. The factor-loading coefficient used for the analysis of the study was set at 0.40. Items with factor-loading coefficients less than 0.40 were subsequently dropped. Related communality for an item was computed as the sum of squared factor loadings for variables. Normally if the communality exceeds 1.0, there is a spurious solution, which may reflect too small a sample or the researcher has too many or too few factors (Garson, 2005). The minimum acceptable item correlation factor of 0.40 was used. The information is presented in Table 4.1.5

Table 4.15: Component Matrix for Store Layout Design

Item	Extraction
The retail isle width importance in in-store logistics	0.717
Average transactions per counter in relation to floor space in ft	0.703
The population density per square feet as a ratio of floor space (ft)	0.610
Retail costs per square feet in relation to sales per square feet	0.571
The store layout defines way the supermarket is arranged.	0.548
Floor layout as percentage of nominal area	0.502
Branch store layout is similar to warehouse store layout	0.488

After factor analysis was conducted, reliability test was conducted using Cronbach alpha. Store layout and design had a total of nine (9) items. Seven (7) items were confirmed valid since their factor loading values were more than 0.4.

4.6.2 Descriptive Analysis for Store Layout and Design

Retailers use layout design information to design the store's flow, merchandise placement and store logistics. Layouts and designs help retailers to understand how much revenue is earned per square foot. The study, sought to measure the extent to which store layout and design statistics impacted on branch network expansion.

4.6.3 The Number of Pathways inside the Supermarket Branch

The study sought to establish the numbers of pathways employed by the supermarkets. These results are shown in Table 4.16.

Table 4.16: The Number of Pathways employed by the Five Supermarkets in their Branches

Number of pathways	Frequency	Percent
1-5	5	2.7
6-10	41	22.4
11-15	104	56.8
16 -20	26	14.2
21-25	7	3.8
Total	**183**	**100.0**

Fifty-six point eight percent (56.8%) indicated 11 to 15 pathways, 22.4% 6 to 10 pathways, 14.2%, 16-20 pathways, 3.8%, 21 to 25 pathways and 2.7% for 1-5 pathways. Quinn and Stewart (2007) studies show that the number of pathways employed by a branch varied from one supermarket to another. Although their study never provided a generic number, their longitudinal study on major UK supermarkets retailers using CCTV cameras found that pathways between 11 and 20 were the most preferred in-store convenience and during data extraction of consumer logistics. Previous studies by Archna and Audhesh (2006) on space management through data tracking devices indicated that each supermarket typically had a fixed number of square meters to use. According to the study if one segment was increased the space of another would reduce. Matopoulous *et al.* (2007) contradicts both findings by asserting that in a retail environment, the number of pathways adopted depend on each retail gross return on footage (GMROF) as guided by sales per square foot per day statistics. These findings affirm the help accorded by pathways in helping the customers find the products first time on different trips. Citing Archna and Audhesh (2006) and Matopoulous *et al*. (2007), Collins (2014) argues that this depends on the permanent structure within which the supermarket is located, customer traffic and the kind of products displayed.

4.6.4 Display Formats

The study sought to establish the number of display formats on offer by supermarkets. The results are shown in Table 4.17.

Table 4.17: Display Formats

Display formats	Frequency	Percent
1-5	3	1.6
6-10	35	19.1
11-15	108	59.0
16 -20	29	15.8
21-25	8	4.4
Total	**183**	**100.0**

Fifty-nine percent (59%) of the respondents indicated 11-15 formats. This was followed by 6-10 formats (19.1%), 16-20 formats (15.8%), 21-25 formats (4.4%) and 1-5 formats (1.6%). These findings collaborate with Varpou-Uotila (2007) study which indicated that the display formats in supermarkets are significantly related to the number of pathways on offer and provided that the most prevalent formats were 11-15.

Hin *et al.* (2008) game theoretical model assert that in order to benefit from display formats selected, supermarket retailers selected between display all (DA) or DO format (display only 1). Citing Varpou-Uotila findings, Yin *et al.* (2008) studies also support that display format strategically depended on extremes of display all (DA) and the (DO) format as illustrated by the Yin *et al.* (2008) game theoretical model. Contrary, the authors further revealed that the best display formats were 6-20.

4.6.5 Description Analysis for Store Layout Design

The study sought to establish the relationship between store layout and branch network expansion. The ratings are presented in Table 4.18.

Table 4.18: Store Layout Design Statistics

Statement	Strongly disagree	Disagree	Not Sure	Agree	Strongly agree	Mean
Store layout defines way the supermarket is arranged	4.4%	5.5%	15.8%	59.0%	15.3%	**4**
Population density per square feet/ floor space	3.3%	4.9%	14.2%	67.2%	10.4%	**4**
Branch/warehouse layout similarity	4.4%	7.1%	14.2%	67.8%	6.6%	**4**
The retail isle width importance	2.2%	6.0%	9.3%	74.3%	8.2%	**4**
Average transactions per counter/ floor space	1.6%	4.4%	9.3%	70.5%	14.2%	**4**
Floor layout /nominal area	1.1%	3.8%	11.5%	66.1%	17.5%	**4**
Retail costs per square feet vs. sales per square feet	3.8%	6.6%	17.5%	68.3%	3.8%	**4**
Average	**3.0**	**5.5**	**11.8**	**67.6**	**10.9**	

Fifty-nine percent (59%) of the respondents were in agreement that the store layout defined supermarket arrangement. This was followed by 15.8% of the respondents who were indifferent, 15.3% strongly agreed, 5.5 % disagreed while 4.4% strongly disagreed. Corroborating the findings, Sanal (2014) study analysis of efficient execution of in-store logistics in grocery retailing illustrated that store layout is the overall look and feel of retail store interior. The author highlighted that placement of fixtures and products were based on a fixed number of square meters available in a branch. Previous studies supporting this view are Levy and Weitz (2007) whose findings show that store layout dictated in-store traffic and space management in retail environments.

On whether the relationship between population density and floor space guided in establishment of new branches, sixty-seven point two percent (67.2%) of the respondents agreed that the population density in a store as a ratio of the floor space determined moves to establish new branches. Fourteen point two percent (14.2%) of the respondents were indifferent, 10.4% strongly agreed, 4.9% disagreed and 3.3% strongly disagreed. Corroborating the findings, Ming-Ling *et al.* (2011) study on UK supermarkets and store characteristics, identified population and its relationship to floor space to be a major determinant of supermarket expansion moves. Moradi *et al.* (2013) studies on population density reports that population density and floor space relationship could be factored on a 10-minute minimum customer waiting time. The study further found that population density data was significantly related to queue lengths. The authors further report that queue lengths at the counter were inversely proportional to the square of the service speed irrespective of the floor space. However, Nag *et al.* (2014) study on retail customer density cautions that population density should be measured in continuous flow and not associated with queue flow as this could be misleading.

The researcher further sought to establish if the store layout of a branch had similarities with the warehouse layout. Sixty-seven point eight percent (67.8%) of the respondents agreed. Fourteen point two percent (14.2%) were indifferent, 7.1% disagreed, 6.6% strongly agreed while 4.4% of the respondents strongly disagreed. The results show the

significance of collaboration activities for the selected supermarkets. The current study corroborates results of Bobot (2011) on Winco Supermarket store layout. The studyfound that Winco's store layout highly resembled their distribution centre model with large isles, giant shelves and bulk product display. Although Bobot (2011)'s study survey failed to identify underlying reasons for all stores, the author qualified that Winco's Stores were similar to its warehouse style of 85,000 to 90,000 square feet.

In later studies, Clement *et al* (2011) support collaboration efforts of the warehouse and the store. In their exploratory study on Gree Supermarket and Z retail in china, the authors found that Chinese manufacturer posed powers over retailers and retailer stores and warehouse were significantly aligned to the manufacturer's layout for strategic reasons of quick stock offloading and delivery. Other Corroborating studies are those of Nag *et al* (2014) that analyzed manufacturing industry data using design methods similar to Clement (2011). The study indicated that in the USA, structuring store layout with in-stores and manufacturing warehouse layout helped in-store logistics, predict the manufacturers supply chain strategy and provided reliability of response times. The results obtained by Sanchez *et al*. (2015) would appear to refute the view that store layout will always be similar to the manufacturers store layout.

Carrying out a field experiment in Greece on horizontal logistics collaboration, Sandrez *et al.* (2015) indicate that at times the warehouse and distribution centres agility reduced retailer layout resemblance to the manufacturer's. The authors found that consignment sale awarded more powers to the retailers although these powers could not force the manufacturer to align his warehouse to particular retailer layout especially when serving many retailers. The studies further sought to establish the significance of retail isle width on in-store retailing. Seventy-four point three (74.3%) percent indicated that retail isle width was very significant in retail network expansion. Nine point three percent (9.3%) were indifferent, 8.2% strongly agreed while 6% disagreed and 2.2% strongly disagreed.

Parracho *et al.* (2009) studies indicate that space productivity is critical to successful retailing. Their studies maintain that supermarket retailers needed to benchmark minimum isle standards in the stores to ensure that check-out times and ease of shopping are not affected. Corroborating the study, Parracho *et al.* (2009) and Nag *et al.* (2014) provide a working rule improving conveyance in the supermarket stores by providing that the best minimum isle width was that sufficient to allow two hand trolleys to pass one another and some customer movement margin. While making general findings about space management, Katerina *et al.* (2008) significantly, associates retail management and layout improvement to retail store crowd density management. The authors indicate that retail isle number needed to be increased to multi levels from entrances towards check-out points. On whether the relationship between the number of transactions per counter and floor space guided branch decisions, seventy point five percent (70.5%) of the respondents agreed, 14.2% strongly agreed, 9.3% were indifferent, 4.4% disagreed while 1.6% strongly disagreed. Corroborating the current studies Yavuz and Akvali (2008) support the significance of the transactions per counter and floor space as it helps retailers to keep track of the number of transactions carried out in relation to floor foot available. In their study on Walmart in the UK and Germany, Pioch *et al.*(2009) also indicated that the relationship between transactions per counter to floor space was significant for retail activities since it assisted supermarkets in management of store checkout speeds.

On whether the relationship between the current and nominal floor space was vital in making branch network decisions, 66.1% respondents agreed that the amount of floor space in relationship to nominal ratio was significant, 17.5% were in strong agreement, 11.5% were indifferent, 3.8% disagreed while 1.1% strongly disagreed. It is well known from previous studies (Kumar, 2008; Fernie & Grant 2008; Fewlett *et al*, 2008) that floor space significantly assisted on branch network strategy. Kumar (2008) indicated that floor space could easily be manipulated by isle configuration and facility layout. Fawcett *et al*. (2008) corroborates that any additional space in a store could be used for

complementary purposes such as loading or stocking areas. Fernie and Grant (2008) on a study on barriers of retail supply chain, found out that nominal floor space could be allowed to oscillate up or down by 10%. Faber-Dekoster (2013) study on Walmart revealed that despite the ambiguity that existed, there should be a discriminatory line drawn between what is available and the opportune. Their study proposes that an area beyond 120% of the nominal added nothing but unused space. The current study also sought to establish the significance of retail costs in relation to sales per square feet in branch network strategy. Results from the study established that 72.1% of the respondents rated this as significant. Ten point four percent (10.4%) of the respondents disagreed while 17.5% were indifferent. Carrying out a survey on 125 representatives of large supermarkets chains in Brazil, Hugo *et al.* (2009) corroborated these results by indicating that the measure is very significant since it measures occupancy, cost per square foot, selling space in relation to occupancy costs and selling space. The authors indicate that such relationships translated occupancy costs into dollar value per selling space. A similar study by Ming-Ling *et al.* (2011) on Walmart and Carrefours' resolution of structural problems indicated that the relationship would be used to estimate the amounts of dollar gross margin in each unit of space employed to cover occupancy costs. The authors further indicate that the measure was helpful in comparing performance of units for multiunit retailers in different locations which would be useful in store closure or retention decisions.

4.6.6 Correlation Analysis of Store Layout and Branch Network Expansion

Pearson correlation coefficient is a measure of linear association between two variables. Values of correlation coefficients are always between -1 and +1(Sekaran, 2008). The r value is used for interpretation. According to Pallant (2005) values between 0.01 to 0.29 show small correlations, 0.03 to 0.49 medium while values between 0.50 to 1.0 show high correlation. The results are shown in Table 4.19.

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Table 4.19: Store Layout Design Pearson Correlation

		BRANCH NETWORK EXPANSION	STORE LAYOUT
BRANCH NETWORK EXPANSION	Pearson Correlation	1	.505[**]
	Sig. (2-tailed)		.000
	N	183	183
STORE LAYOUT	Pearson Correlation	.505[**]	1
	Sig. (2-tailed)	.000	
	N	183	183

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

The correlation coefficient between store layout and branch network expansion is 0.505 at P =0. 000. This is a highly significant linear correlation between the two variables. This supports the argument by Ugur *et al.* (2010) which indicate that a well-planned retail store layout allows retailers to maximize on retail branches and help in network strategy. Experimenting with performance models in New Zealand the authors argue that the store layout strategy adopted by a particular retailer aligned their activities to the procurement and distribution approaches specific to their branch network strategy particularly during opening and closing branches. Zijlstra and Mobach, (2011) on a layout exploration of layout principles found, that good and similar retail layout designs assist in relating branches of the retailers supply chain to the same degree of desirability.

Although Notteboom and Rodriguez (2005) arguments do not elaborate on the strength of the relationship, employing the gross effect model the authors argue that there was a positive relationship between store layout and branch network expansion strategy. Their findings focused on retailers who applied the hub and spoke network model of branch expansion with head offices controlling all logistical activities of growing trade volumes. Agins *et al.* (2006) indicate that the store layout and design of the flagship stores are operated with the intention of building or reinforcing the image of the retail

supply chain for easy network expansion rather than operating to sell product at a profit. Madaan, (2009) indicate that the store layout is best if it is optimizing the retail chain space while expanding. Using the case of Patagonia inc. a California-based retailer, the author illustrates that the allocation spacing error has a direct effect on the company's supply chain and branch network strategy and there will be no standard layouts to follow when updating or opening a new store.

4.6.7 Results of Regression Analysis on Store Layout and Design

The model equation $y=\beta_1 x_1+\varepsilon$ was used to establish the additional unit change in store layout that would cause branch network expansion to change by some unit. The results are shown in Table 4.20.

Table 4.20: Model Summary for Regression between Store Layout Design and Branch Network Expansion

R	R Square	Adjusted R Square	Std. Error of the Estimate
.505[a]	.255	.251	1.64237

The results indicate that store layout explained 25.1% of the variations in branch network expansion. This indicates that 25.1% of the corresponding change in branch network strategy can be explained by a unit change in store layout (every additional unit change in store layout would cause branch network expansion to change by 0.251. This supports the argument by Cateora *et al.* (2012), who indicate that store layout design is an important determinant of store loyalty and branch supply chain strategy. The authors illustrate that store layout design help in allocation of space. This is illustrated by Patagonia stocks and similar presentation ofretail appearances intheir franchises. Another study by Simonson (2012) show that store layout design can play a key role in satisfying buyerrequirements, influencing wants and preferences in new locations.

4.6.8 Results of Analysis of Variance on Store Layout Design

The F test of overall significance was carried out. Its interpretation is based on the overall significance which should be less than the significance level (0.05).

The results are presented in Table 4.21.

Table 4.21: ANOVA Results for Store Layout Design and Branch Network Expansion

	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	166.985	1	166.985	61.906	.000[a]
Residual	488.227	181	2.697		
Total	**655.212**	**182**			

The component fit of the model, using the F test had an F value of 61.906 at P =0.00. The P value was less than 0.05 and therefore the null hypothesis was rejected. A conclusion was made that the model provided a better fit than the intercept only model. An inference was also made that the set of store layout design and its predictors included in the model improved its fit and that store layout design is influential in predicting branch network expansion in supermarket retailing in Kenya. The results corroborate Roslinand Rosnan (2012) study which indicate that layout contributes to retailer's efficiency, increased productivity and higher sales when expanding into new locations. Rymarzak and Sieminska (2012) concur with the findings that the ideal layout dictates on the retailer's strategy and expansion advantage.

4.6.9 Results of Coefficients for Regression between Store Layout Design and Branch Network Expansion

Coefficients for regression between store layout design and branch network expansion were sought. The P value for each tests the null hypothesis that is there is no effect of store layout design on branch network expansion. A low P value (P <0.05) indicates that the null hypothesis can be rejected. In other words, a predictor that has a low P value is likely to be a meaningful addition to the sought model. The results are shown in Table 4.22.

Table 4.22: Coefficients of Regression between Store Layout Design and Branch Network Expansion

	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	Beta	t	Sig
(Constant)	10.932	.714		15.307	.000
STORE LAYOUT	.234	.030	.505	7.868	.000

According to the results of regression, store layout design has a positive influence on Branch network expansion. The significance value 0.00 is less than that of normal data (0.05). The null hypothesis was rejected. Store layout design and its predictors are a meaningful addition to the model. In supporting the results of the significance of store layout on branch network expansion previous studies conducted by Seyed (2005) indicate that in facilities design, retail layout has been determined to be one of the most important elements in the effectiveness of systematic branch operability and new branch acceptance in new markets. Citing Tompkins *et al.* (1996), Lala and Chakrabaty (2015) argue that effective facilities planning through good layout designs can reduce material handling cost by at least 10 to 30 percent and have a positive influence on branch network expansion since it reduces expansion costs.

4.6.10 Store Layout Design Hypothesis Testing

There is no significant linear relationship between store layout design and branch network expansion. The hypothesis is stated as:

$H_{0:}$ β_1 $= 0$

$H_{A:}$ $\beta_1 \neq 0$

This was tested by comparing the t calculated and the t critical value using a two tailed test.

Table 4.23: Hypothesis' Testing for Coefficients of Regression between Store Layout Design and Branch Network Expansion

Model	β	t-cal	t-critical
constant	10.932	15.307	
Store layout design	0.234	7.868	1.96

Comparing the t calculated and the t critical, the t-calculated is greater hence the study rejects the null hypothesis that there is no significant linear relationship between store layout design and branch network expansion. In support of this, Madaan (2009) argues that the layout of the store is highly significant and influences both the customer experience and the retail chain expansion speed in new and established markets. These findings also support the framing theory store division sales, share models and customer segmentation models. Employing the models, De-Giovanni *et al. (*2011) suggest that presenting the same layout and design in the same formats during branch expansionprovide brand loyalty to retailers.

4.7 Store Image

4.7.1 Factor Analysis for Store Image

Store image had a total of nine (9) items. All of them were confirmed since their factor loads were more than 0.4. This information is presented in Table 4.24.

Table 4.24: Factor Analysis for Store Image Store Layout and Design

Item	Extraction
The use of consignment sales model provides ready stocks reducing set up costs	0.772
The delivery lead times established indicates the success of a store	0.725
The store image percentage helps new store negotiation with suppliers	0.676
The level and Knowledge of the store image assists in market	0.633
The branch power helps the store negotiating for branch location in malls	0.578
Branch image strength information helps in new market entry	0.513
branch reputation in the market promotes stores	0.488
Stores have invested in supplier businesses	0.467
The store image level determines setup costs of new branches	0.464

4.7.2 Descriptive Analysis for Store Image

The respondents were asked to provide objective opinions best describing responses. The results of the findings are presented in Table 4.25.

Table 4.25: Descriptive Analysis for Store Image

Statement	Strongly disagree	Disagree	Not Sure	Agree	Strongly agree	Mean
Investment in supplier businesses	1.6%	5.5%	6.0%	57.4%	29.5%	**4**
Branch reputation promotes store image	0.0%	4.9%	4.9%	66.1%	24.0%	**4**
The competitors store image affects setup costs	1.1%	3.8%	13.1%	69.9%	12.0%	**4**
knowledge of the store image assist in expansion	0.5%	1.1%	6.0%	79.2%	13.1%	**4**
The delivery lead times	0.5%	2.2%	10.9%	70.5%	15.8%	**4**
The store power and store negotiation for branch location in malls	0.5%	2.2%	3.8%	76.0%	17.5%	**4**
The store image assist in negotiation with suppliers	0.0%	1.1%	6.6%	70.5%	21.9%	**4**
consignment sales model reduces set up costs	0.5%	0.5%	4.9%	72.7%	21.3%	**4**
Average	**0.644**	**2.422**	**7.7**	**70.68**	**18.51**	

The study sought to establish whether supermarkets invested in buyer seller relationships. Fifty-seven point four percent (57.4%) of the respondents agreed. Twenty-nine point five percent (29.5%) strongly agreed, 5.5% disagreed while 1.6% strongly disagreed. The results corroborate activities of major supermarkets. For Morrison's long-term supplier view throughout the supply chain was encouraged. This is done by working closely with the main suppliers and food manufacturers (Archna *et al*, 2006).

Studies by Hultman (2008) also corroborate the results by recommending vertical integrated business models which place suppliers in highly contested or dependent relationships leveraging value. To illustrate this, the author employed Sainsbury's codification of suppliers as red, amber or green according to their dependency capability in relationships. Carrying out a survey Chung, Sherry and Xu (2012) studies found contradicting results. In their study, UK supermarkets were found to be utilizing their power advantage in monopsony arrangements by deciding on which products to award strategic shelf space. Other power abuses and unfair strategies cited in the study were determination of delivery schedules, listing fees, slotting fees and supplier delisting.

The study further sought to establish the relationship between branch reputation and store image. Sixty-six point one percent (66.1%) respondents indicated that store operations affected the brand image of the store. Twenty-four percent (24.0%) respondents strongly agreed while 4.9% of the respondents disagreed. In Malaysia, Hasliza *et al.* (2013) conducted a study to identify the salient activities influencing store success within hypermarkets. The study employed a multi attribute approach previously used by Varpu and Skogster (2007) in analyzing space management in supermarkets. They found that branch establishment strategy was directed at fostering store image, lowing set up costs and clustering advantages enroute to locations areas.

The study further sought to establish the store image level and how it predicted the level of expansion initiatives. Seventy-three point eight percent (73.8%) respondents were in agreement. Eleven point five (11.55%) highly agreed, 13.1% were ambivalent, 55 disagreed while 1.1% highly disagreed. Studies corroborating the current study are Hayden (2007) study on Wal-Mart that illustrated that much of Wal-Mart's expansion was derived from their created image with suppliers that assisted their branches to keep low prices for merchandise negotiation. Archna *et al.* (2006) concur with the findings but argue that no research has laid a clear cut relationship between store image and particular expansion moves.

On whether the store image information help in market development of new branches. The study revealed that seventy-nine point two percent (79.2%) of the respondents agreed, 13.1% strongly agreed while 6.1% disagreed. The results are a clear indication that supermarkets store image knowledge is vital for market development during branch expansion. These findings are a true reflection of the activities of global supermarket leader Sainsbury's. Smith and Sparks (2005), Simupang and Sridhara (2005) indicated that Sainsbury's maintains a seven-year strategy where the management launched 7 in 3 supply chain management programs involving major overhauls of their physical infrastructure and supply rejuvenation. This was aimed at providing a good image to their stores. Sainsbury implements this by integrating transportation from the factories to branch backdoors while replacing current depots with automated fulfillment factories and consolidation centers specifically for new branches in new locations.

On whether delivery lead-times benchmarks indicated the success of new branches, 70.5% of the respondents strongly agreed. Overall 7.2% of the respondents were in disagreement. The current study's findings corroborate findings of Menachof and Makios (2009) on lead times in the UK and Greek markets. The study illustrate that the total lead time of a supply chain was always longer than its parts. Using a survey of managers of a major multiple food retailer in the UK and Greece the findings further suggested that focus on established lead-time benchmarks relationship to new branches was vital. Similar studies conducted by Diallo (2012) in concordance with the data provided the Tersine and Hummingbird (2010) lead-time approach which suggest lead-time control of all the gaps (time, space, quantity, information and quality in supply chains).

The study further sought to establish whether the retailer's image provided retail powers during negotiations in malls and while making other location decisions. Seventy-six percent (76%) of the respondents were in agreement, 17.5% in strong agreement while 7.2% disagreed. Corroborating the study findings Cuneo, lopez and Yague (2012) illustrate that in the UK Aldi, Netto and Lidl employed drafted and exclusive clauses

governing their relationship with mall tenants so that exclusively supermarket retailers did not replace them while acquiring the malls. Sparks (2011) study found that the world largest retailer, Metro with its base in Germany controlling 47% market concentration of Wal-Mart's. The author delineates Metros large retail image and associate Wal-Mart's success to Greenfield supply strategy of mall negotiation and contract extension that was based on acquisition and maintenance of retail chains of acquired hypermarkets.

The study further sought to establish whether store image was used in supplier negotiations. Seventy point five (70.5%) of the respondents were in agreement, 17.5% strongly agreed while in totality 1.1% disagreed. Corroborating the current studies, the Competition Commission, (2008) findings in the UK show that this power was significant in cases where Solus Supply Models were employed and smaller suppliers sold all their output to a single chain. While employing the Nash bargaining model to rationalize equilibrium payoffs, Dukes, Gal-Or, and Srinivasan (2009), contradict the current study findings by asserting that the outcomes of negotiations depend on bargaining position of the parties and the difference between agreement and disagreement payoffs of retailer and suppliers.

On whether the use of consignment sales models provided ready stocks for new supermarket branches, seventy-two point seven percent (72.7%) of the respondents were in agreement, twenty-one point three percent (21.3%) strongly agreed while 1% of the respondents were in disagreement. Contradicting the results Fangtao and Yiting (2012) study on optimization strategies identified that startup consignment stock dependency could expose the branch to the availability strategy failure and the last 50 yards' problems of supply chains. Further contradiction is extended by Lala and Chakraborty (2015) study on the impact of consumer efforts which found moderate agility of consignment models and little award of competitive advantage to retail chains. The authors illustrate that multi supply chains could emerge to use consignment models in retail outlets as stores for storing slow moving goods, or places to sort, mix while transporting to high margin retailers.

4.7.3 Store Image Pearson Correlation

The Pearson correlation of linear association between two variables was employed. The P value was compared to 0.05. The results are shown in Table 4.26.

Table 4.26: Store Image and Branch Network Pearson Correlations

		BRANCH NETWORK EXPANSION	STORE IMAGE
BRANCH NETWORK EXPANSION	Pearson Correlation	1	.586[**]
	Sig. (2-tailed)		.000
	N	183	183
STORE IMAGE	Pearson Correlation	.586[**]	1
	Sig. (2-tailed)	.000	
	N	183	183

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

The Pearson correlation coefficient was found to be 0.586 at P value of 0. 000.These results indicate that according to the study there is highly significant linear correlation between the two variables. This results support the findings of Walsh (2010) who illustrated the high significant relationship between store image and branch network expansion. Using the case of Woolworth, the author found a relationship of 0.374 between store image and Woolworth's branch expansion in Ireland within five years of launching first outlets and subsequent launching of other identical outlets. They were characterized as identical eye-catching red and gold facades.

Hoppner *et al*. (2015) and Gollnhofer *et al.* (2015) introduce the idea of business distance(network penetration),as the gap between flagship store image and unattained markets. The authors argue that the relationship between store images is so significant to the extent that if the flagship stores do not portray a good image then branch expansion

becomes hard.Saini and Sahay (2014) argue that for many retailers, branch network competitive advantage in the home market is based on the development of strong store and corporate images which force retailers to develop themselves as brands in their own right.

4.7.4 Results of Regression Analysis on Store Image

The model $Y=\beta_2X_2+\varepsilon$ was used to establish the additional unit change in Branch network expansion that could be contributed by a unit change in store image. This is shown in Table 4.27.

Table 4.27:Model summary for Regression between Store Image and Branch Network Expansion

R	R Square	Adjusted R Square	Std. Error of the Estimate
.586[a]	.343	.340	1.54189

The model equation $Y=\beta_2X_2+\varepsilon$ explain that 34.0% change in branch network expansion is caused by store image. This supports the argument by levy and Weitz (2012) that successful retailers focus on retail with consistency in brand image during branch network expansion. The authors argue that customers of large scale retail formats hold greater willingness to travel further to reach the retailers. Diallo (2012) also supports the findings citing the fast expansion of Wal-Mart networks normally derived from their supply chain brand image.

4.7.5 Results of Analysis of Variance on Branch Network Expansion

The study tested the overall significance of the model using an F test. The premise hypothesis was:

H_0: the fit of the intercept only model and the store image model are equal

H_1: the fit of the intercept only model is changed compare to the store image model

The results are presented in Table 4.28.

Table 4.28: ANOVA Results of Store Image and Branch Network Expansion

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	224.897	1	224.897	94.596	.000[a]
Residual	430.316	181	2.377		
Total	**655.212**	**182**			

The results indicate that the model of branch network expansion at F value 94.596, P=0.00 show that store image is statistically significant in predicting branch network expansion. The results indicate that the store image is likely to have a meaningful addition to the model since the P (0.00) is less than 0.05. Lala and Chakraborty (2015) corroborate the above findings by illustrating that with new methods of distribution having emerged it has forced old branch channel to be transformed from being transaction process driven to image based. The authors describe the continuing role of the branch in distribution strategies and outline the key physical transformations that have occurred in the branch channel their rationale based on branch image.

4.7.6 Results of the Coefficients for Regression between Store Image and Branch Network Expansion

Coefficients for regression between store layout design and branch network expansion were sought. The P value for each tests the null hypothesis that is equal to zero (no effect) A low significance value ($P<0.05$) indicates that the null hypothesis can be rejected. In other words, a predictor that has a low P value is likely to be a meaningful addition to the sought model. The results are shown in Table 4.29.

Table 4.29: Results of the Coefficients for Regression between Store Image and Branch Network Expansion

Model	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	Beta	t	Sig.
(Constant)	10.707	.603		17.749	.000
STORE IMAGE	.250	.026	.586	9.726	.000

According to the results of regression the store image significance value is less than 0.05. This can be inferred that the null hypothesis can be rejected and a conclusion made that store image is meaningful addition to the model. This means that store image positively influences branch network expansion at a 5% level of significance. In supporting the significance of store image on branch network expansion, Silpa (2007), indicate that store image is an important determinant of store loyalty and branch supply chain strategy. The author illustrates that store image development reduces the entry costs of branches in new settings. Another study of Swinyard (2007) also mentions that store image can play a key role in satisfying buyer's imagined requirements and in influencing their wants and preferences in new locations.

4.7.7 Store Image Hypothesis Results

There is no significant linear relationship between store image and branch network expansion.

The hypothesis was stated as;

$H_{o:}\ \beta_2\ = 0$

$H_{A:}\ \beta_2 \neq 0$

It was tested by comparing the calculated t value with the critical value employing a two tailed test.

Table 4.30: Hypothesis Testing for Coefficient of Regression between Store Image and Branch Network Expansion

Model	β	t-cal	t-critical
constant	10.707	17.749	
Store image	250	9.726	1.96

The t calculated value (9.726) is greater than the t critical value (1.96). The study failed to reject the alternative hypothesis of significant linear relationship between store image and branch network expansion. The statement has the support of Kovil (2008) that the store image of most retailers selling automotive parts chains and agricultural chains maintained high chances of employing the retail model since their store image made the branch network expansion. Employing a multiattribute model of store image statistics, Singh and Kant (2008) found out that there was a positive relationship between store image and branch network expansion for multi format retailers in competition to establish branches and collude in the market during market sharing.

4.8 Retail Assortment

4.8.1 Factor Analysis of Retail Assortment

Factor analysis of retail assortment had a total of eight items (8). One item was dropped.

Table 4.31: Retail Assortment Factor Analysis

Statement	Extraction
Knowledge about retail assortment assists in inventory levels in both new and old branches	0.874
Consignment supplier mix determines the success of new branches	0.719
Product lines stocked in the branches assist in branch expansion decision	0.655
Length of the merchandise to benchmarks is a determinant of new branch establishment	0.555
Dispersion attribute levels saturation determines moves to create new branches	0.550
Retail assortment information your branch to reserve capacity at factories	0.526
Retail assortments of the store assists new branches in establishing a combination or direct ordering of new stores	0.439

4.8.2 Descriptive Analysis Results for Retail Assortment

The study also sought to establish whether retail assortment information was important in making branch network expansion decisions. The results are shown in Table 4.32.

Table 4.32: Respondents Opinion on Retail Assortment

Statements	Strongly disagree	Disagree	Not Sure	Agree	Strongly agree	Mean
Length of the merchandise	2.7%	15.8%	5.5%	67.2%	8.7%	**4**
Dispersion of attribute levels as a benchmark of product saturation	4.9%	9.3%	15.3%	62.3%	8.2%	**4**
Consignment supplier mix as a ratio of fixed contract suppliers	0.0%	5.5%	10.9%	74.9%	8.7%	**4**
Retail assortment assists branches to reserve capacity at factories	3.3%	3.8%	11.5%	69.9%	11.5%	**4**
Retail assortment information assists branch inventory positioning	7.1%	9.3%	8.2%	55.2%	20.2%	**4**
Retail assortments of the store assists new branches to establish	0.0%	1.6%	15.8%	67.8%	14.8%	**4**
Average	**3**	**7.55**	**11.2**	**66.22**	**12.02**	

The study sought to establish the impact of merchandise length on branch network expansion. Sixty-seven point two (67.2%) of the respondents agreed, 15.8% highly disagreed, 8.7% strongly agreed while 2.7% strongly disagreed. On a survey of consumer reaction to small assortment against large assortments, Warfield (2006)

showed that consumers were more attracted to large assortments. Although the author recommended large assortments his study failed to distinguish between breath and length of the assortment therefore providing results that were inconclusive.

In a series of in-store studies Jiang and Gao (2012) contradict the current findings by examining 10% reduction of low volume SKUS in eight categories over a period of four months. Using shelf re-set procedure the authors found that smaller assortment had a positive effect on sales of low volume goods. Supporting Jiang and Gao (2012), Jin et al (2013) study further found out that consumers were not sensitive to SKU reduction of 25-30% in food categories if the size of the shelf space was held constant and supported by assortment duplication.

On whether attribute levels contributed to branch network decisions, 62.3% of the respondents were in agreement, 8.2% strongly agreed, 9.3% disagreed while 4.9% strongly disagreed. Corroborating the findings, Enberson *et al.* (2006) support the above findings that the level product attribute significantly affected supply chain network expansion. Moreover, their study indicated that product attribute data affected branch success. Profiling the differences between symmetric and asymmetric assortment Ettouzani, Yates and Mena (2012) contradicts the above findings by explaining that the problem of attribute levels could be solved in different ways provided the available assortment is offered on symmetric assortment models which increases visibility of high frequency items.

The study also sought to establish how the balance between consignment and fixed contracts assisted in new branches success. Seventy-four point nine (74.9%) respondents were in agreement that this ratio was vital. Eight point seven (8.7%) strongly agreed, 10.9% were ambivalent while 5.5% disagreed. In their analysis of reverse logistics and procurement cost management, Yi-Chun *et al.* (2015) study corroborate the above findings by illustrating that consignment models help retailers to control procurement costs and provide easy product return through reverse logistics. Considering the impact

of perishable goods their study recommends that retailers employ consignment model to control costs and shrinkage risks as forecasting errors are left to the suppliers. In the Kenyan market a study on the supermarkets by Kamau, (2008) clearly supported this model through the analysis of Nakumatt and Tuskys who applied this concept at 75% and 25% respectively in their operations.

On whether retail assortment assist branches to reserve capacity at factories, sixty-nine point nine percent of respondents were in agreement, 11.5% strongly agreed while 7.1% disagreed. This corroborates studies by Cline *et al.* (2015) which indicated that the retail assortment held by supermarket warehouses guided on the amounts of stocks held at distribution centers and factories. In his UK study, the author illustrated that the fast moving product capacities were held in controlled amounts through vendor inventory management systems. On whether retail assortment assists in inventory positioning 55.2% of respondents were in agreement, 20.2% strongly agreed. In totality 16.4 % of the respondents' disagreed. Yi-Chun *et al* study (2015) illustrate that for ALDI's, SKU's of 25 to 35 were retailer optimal. While making general findings about stock outs, Reynolds and Wood (2010) provide that the number of items stocked in a standard format of 20,000 feet should relate to stock items at a ratio of 800:1. However, Jiang and Gao (2012) provide that for Bangladesh supermarkets retailers carried between 8-10 categories and 8000-10000 products. The study further illustrates that the items held significantly depend on whether moving, slow moving fast or non- moving.

4.8.3 Number of Product Lines in Stock

The study sought to establish the numbers of product lines stocked in stores.The results are presented in Table 4.33.

Table 4.33: Number of Product Lines in Stores

Product lines	Frequency	Percent
1-5	1	0.5
6-10	9	4.9
11-15	42	23.0
16 -20	33	18.0
More than 20	98	53.6
Total	**183**	**100.0**

The study sought to establish the number of product lines stocked in the stores. Fifty-three point six (53.6%) respondents indicated that they stocked more than 20 product line, 23.0% stocked between 11-15 lines and 18% stocked 16-20. One to five product lines (1-5) were rated the least. The current study concurs with Yi-Chun *et al* (2015) study on ALDI that indicated that the retailers maintained a range of 25 to 35 SKU's on every 12000 square feet selling area as guided by Wal-Mart's retail support stores that ALDI used as a barometer. Although the author indirectly points to ALDI levels as benchmarks he cautions that each retailer maintained their stock levels depending on the demand.

4.8.4 Product Assortment Information

The study sought to establish the importance of product assortment information to retail chains. The results are presented in Table 4.34.

Table 4.34: Importance of Product Assortment Information

Statement	Frequency	Percent
Disagree	10	5.5
Ambivalent	16	8.7
Agree	103	56.3
Strongly agree	54	29.5
Total	**183**	**100.0**

On whether product assortment information was helpful in branch network expansion, 56.3% of the respondents agreed, 29.5% strongly agreed while 5.5% of the respondents disagreed. The current study findings corroborate Smarvos and Hellstrum (2010) studies that found that product assortment data facilitated successful forecasting. Using a pick and mix confectionary company they further illustrate that product assortment shifted branch network information to middle level personnel who were in charge of decision execution. Similar sentiments are also shared by Rahman (2011) who argued that products assortment information was vital to stores with personnel that had little knowledge on targeted markets.

4.8.5 Ordering Initiatives

The study sought to establish the ordering initiatives employed by the selected supermarket retailers in retail chains. The results are presented in Table 4.35

Table 4.35: Ordering Initiatives

	Frequency	Percent
Direct ordering	9	4.9
Head office dependent	19	10.4
Godown suppliers	102	55.7
Distribution centres	12	6.6
Mix of all	41	22.4
Total	**183**	**100.0**

On ordering initiatives 55.7% of respondents indicated that their branches used go-down suppliers, 22.4% used a mix of initiatives, 10.4% depended on their head office while 4.9% conducted direct ordering. This studies corroborate studies by Kamau (2008) carried out in the Kenyan retail industry and found that Uchumi supermarkets strategy relied on go down suppliers. However, in the study the author also illustrate that most supermarket chains used the Hub and Spoke model where they received products from many origins, consolidated in own distribution and send them directly to branch destinations. The study also identified that most of the supermarket retailers in Kenya minimally used distribution centers (DCS).In a later study conducted by Cline *et al* (2015) a modest positive correlation between direct ordering and direct store delivery (DSD) was established with ordering. The authors indicated that retailers of housing products in supermarkets preferred direct ordering since it allowed suppliers to deliver merchandise to the store as well as carry out in store tasks such and generating orders and product shelving.

4.8.6 Retail Assortment Pearson Correlation

The relationship between Retail assortment and branch network expansion was sought through Pearson correlation. The significance value was compared to 0.05. This is shown in Table 4.36.

Table 4.36: Retail Assortment Pearson correlation

		BRANCH NETWORK EXPANSION	RETAIL ASSORTMENT
BRANCH NETWORK EXPANSION	Pearson Correlation	1	.433**
	Sig. (2-tailed)		.000
	N	183	183
RETAIL ASSORTMENT	Pearson Correlation	.433**	1
	Sig. (2-tailed)	.000	
	N	183	183

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

The P value (0.000) is less than 0.05 and therefore the null hypothesis was rejected. These results demonstrate that there was a high significant linear correlation between retail assortment and branch network expansion. This supports the argument by Chernev (2011) indicating that retail assortment is a critical component of branch network decision. The author argues that retail store efficiency depends on their assortment. Previous studies by Liu and Ryzin (2008) also indicate that there is a positive relationship between retail assortment and branch network expansion. The authors argue that changing branch formats based on assortment helps control costs and helps retailers when applying withdrawal strategies. Bai et al. (2012) studies indicate that most supply chains selected assortments which help to move into networks quickly. The authors

show that reducing the size of branches without relocation was significantly based on retail assortment, a strategy that could be used to exit a location.

4.8.7 Results of the Regression Analysis of Retail Assortment

Regression analysis was employed to explain the extent to which retail assortment information could be used to predict branch network expansion. The results of regression are presented in Table 4.37.

Table 4.37: Model Summary of Regression Analysis on Retail Assortment and Branch Network Expansion

R	R Square	Adjusted R Square	Std. Error of the Estimate
.433[a]	.188	.183	1.71462

The results indicate that 18.3 % of the corresponding change in branch network strategy can be explained by a unit change in store layout. This supports arguments by Mantralaya *et al.* (2009) that indicate that based on the retail assortment offered by retailers, retail stores will employ strategies of rolling out branches by components or if not in totals.

4.8.8 Results of Analysis of Variance on Retail Assortment

The F test was used to test the component fit of the current model and the intercept only model. The results are shown in Table 4.38.

Table 4.38: Results of Analysis of Variance on Retail Assortment

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	123.087	1	123.087	41.868	.000[a]
Residual	532.125	181	2.940		
Total	**655.212**	**182**			

The component fit of the model had an F value of 41.86 and P =0.00. The P value was less than 0.05 and therefore the null hypothesis was rejected. A conclusion was made that the model provides a better fit than the intercept only model. An inference was made that retail assortment and its predictors included in the model improved its fit. In this case, retail assortment is influential in predicting branch network expansion in supermarket retailing in Kenya. Cathon et al. (2005) corroborating the results indicate that the 7.5% of Carrefour Indonesia branch outlets are dependent on retail assortment information. In the same line, Caro and Gallien (2010) employing a stochastic model predicted distribution costs of new branches as a function of retail assortment strategy employed.

4.8.9 Results of Coefficients for Regression between Retail Assortment and Branch Network Expansion

The coefficients for regression between Retail assortment and branch network expansion were sought. A low P value (P<0.05) indicates that the null hypothesis can be rejected. This means that a predictor with a low P value is likely to be a meaningful addition to the sought model. The results are shown in Table 4.39.

Table 4.39: Results of Coefficients for Regression between Retail Assortment and Branch Network Expansion

	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	Beta	t	Sig.
(Constant)	12.926	0.562		22.993	0.000
RETAIL ASSORTMENT	0.207	0.032	0.433	6.471	0.000

According to the results of regression, store layout has a positive influence on branch network expansion since the level of significance is less than 0.05. The null hypothesis was therefore rejected. According to the results, retail assortment was found to have a positive influence on branch network expansion. Corroborating the findings, Fulberg (2005) study on consumer relationships explains that the branch network of retailers is significantly related to the kind of assortment that is offered. In the same line, Laroche *et al.* (2005) propose that the retail assortment reflected related expenses of outlets. The authors argue that there is some moderate positive relationship between retail assortment and branch network expansion. Cullen (2008) study on intra and inter format competition found a direct relationship between retail assortment and branch network expansion of self-service stores.

4.8.10 Retail Assortment Hypothesis Results

There is no significant linear relationship between retail assortment and branch network expansion.

The hypothesis was thus stated as;

$H_o:$ $\beta_3 = 0$

$H_A:$ $\beta_3 \neq 0$

It was tested by comparing the calculated t value to the critical value using a two tailed test.

Table 4.40: Hypothesis Testing for Coefficient of Regression between Retail Assortment and Branch Network Expansion

	β	t-cal	t-critical
(Constant)	12.926	22.993	
RETAIL ASSORTMENT	0.207	6.471	1.96

Comparing the calculated t (6.471) to the critical value t (1.96) the calculated t value is greater than the t critical. The study rejected the null hypothesis and concluded that there is a significant linear relationship between retail assortment and branch network expansion. These findings are also supported by Parker and Lehman (2011) study that indicated that a significant model should identify optimal assortment for significant branch network strategy when opening new branches or closing non performing ones. Corroborating the findings, Opoku *et al.* (2007) study initially expressed strong association between retail assortment and branch network expansion. The author

proposed and empirically tested a two stage model which gauged the optimal assortment ideal for branch network expansion.

4.9 Branch Location

4.9.1 Factor Analysis for Branch Location Items

Branch location had a total of six (6) items. All items were confirmed since their factor loads were more than 0.4. This information is presented in Table 4.41.

Table 4.41: Branch Location Component Matrix

Item	Extraction
Retail area population growth	0.890
Retail patronage numbers	0.862
The projected sales volume of an area	0.798
Branch retail inflow/outflow	0.692
Transport and inventory holding costs	0.425
Distance to distribution centres	0.400

4.9.2 Location of Branch

The study sought to establish the geographical location of supermarket branches. The findings are shown in Table 4.42

Table 4.42: Location of Branch

Branch Location	Frequency	Percent
General Central business district	99	54.1
Estate	72	39.3
Mix	12	6.6
Total	**183**	**100.0**

Fifty-four point one (54.1%) of the respondents indicated that their branches were located in the general business district. Thirty-nine point three percent (39.3%) were located in the estates while 6.6% indicated that most of their branches were located both in general business district and estates. The current studies corroborate studies on Kenyan supermarkets by Kamau (2008). The study found out that most supermarket stores started opening in cities and then shifted focus to opening smaller stores next to bus stations in the central business districts. The study indicated that bus stations were targeted for convenience purposes of reaching middle income groups.

4.9.3 Distance between the Branch and Bus Stops

The study sought to establish where the distance between the branch and the next bus stop. The findings are shown in Table 4.43.

Table 4.43: Distance between your Store and the Next Bus Stop

	Frequency	Percent
Less than 5 kms	152	83.1
6-10 kms	7	3.8
11-15 kms	24	13.1
Total	**183**	**100.0**

On the distance between the branch and the bus station, most respondents rated a distance less than 5 kilometers (83. 1%).Six to ten (6-10) kilometers had a rating of 3.8% while 11-15 kilometers had 13.1%. On a study reviewing rural retailing by location, Paddison and Calderwood (2007) found out that location decisions of most retail branches targeted the general central business district. Though very instrumental, their study failed to qualify that stand alone retailers were located further away from bus stops since they targeted customers with cars.

4.9.4 Tenant Mix in Location Site

The study further sought to establish the tenant mix where the branches were located. The findings are shown in Table 4.44

Table 4.44: Tenant Mix in Location Site

Tenant mix	Frequency	Percent
Assorted service providers	173	94.5
Mix and match	10	5.5
Total	**183**	**100.0**

Ninety-four point five percent (94.5%) of the respondents indicated that they were located adjacent to an assortment of retail providers while 5.5% indicated that their location had a combination of many tenants. Contradicting the current study findings, Borgers *et al.* (2010) citing Beyard and O'Mara (1999) argue that tenant groupings should follow mix and match principles in order to sustain shoppers' interest and ensure that they are drawn throughout the entire centre. Although the studies propose the mix and match strategy, they caution that one type of location that may be suitable for one business could be bad for another. In this case, the retail location in relation to the composition of tenant mix is critical and the Times Model (time, information, money, energy and space) is proposed as the most generic guide. Supporting Borgers *et al.* (2010), later studies by Chung *et al.* (2012) seeking a shopping malls tenant mix model

agreed that tenant mix was vital in relating the percentage of shop area occupied by different store in a shopping malls. The authors differed that there was a scientific model that determine an optimal mix of tenants in a mall.

Table 4.45: Respondents Opinion on Branch Location

Item	Strongly disagree	Disagree	Not Sure	Agree	Strongly agree	Mean
projected sales volume of an area	0.0%	0.0%	6.0%	68.3%	25.7%	**4**
Retail patronage numbers	0.0%	2.7%	5.5%	66.1%	25.7%	**4**
Forecasted market share	0.0%	5.5%	4.4%	74.3%	15.8%	**4**
Market saturation /market size(sales)	3.3%	3.8%	4.9%	68.3%	19.7%	**4**
Number of malls and shopping centres around the area	0.0%	8.2%	6.6%	70.5%	14.8%	**4**
Transport and inventory holding costs	0.0%	0.0%	6.0%	63.4%	30.6%	**4**
Branch retail flows	0.0%	.5%	0.0%	75.4%	24.0%	**4**
Retail area population growth	0.0%	3.3%	6.0%	61.2%	29.5%	**4**
Distance to distribution centres	0.0%	6.6%	0.5%	68.3%	24.6%	**4**
Average	**0.37**	**3.4**	**4.43**	**68.42**	**23.37**	

The study sought to establish whether sales volume information was vital in branch network decisions. Sixty-eight point seven percent (68.7%) were in agreement, 25.7% strongly agreed while 6.0% were ambivalent. Corroborating the findings Wood and Tusker (2008) study on retail location identified site visits as paramount in forecasting sales volumes of geographical areas and penetration of supply chains. In their study the authors illustrated that the measurement and analysis of logistical efficiency while establishing new networks and the use of viability techniques that projected sales volume were the best guide to cost and benefit analysis. The authors propose the use of search techniques to discover areas of the country for new stores using forecasted market share. Vias (2008) study on retail restructuring found that results of previous studies examining the relationship between sales volume and branch network expansion had been inconclusive. His study findings show some studies reporting positive relationship while others finding no clear relationship. Using rural retailers, the author illustrated that rural retailers were disadvantaged due to geographical isolation and unfavorable cost structures. Although the studies do not provide a solid solution to guide optimal retailing market share, the author illustrated that different retailers had a mixture of growth actions which depend on adaptation, diversification and differentiation as controlled by market positions.

On whether retail patronage assisted location decisions, 66.1% percent of the respondents were in agreement, 25.7% strongly agreed while in totality 5.1% disagreed. Corroborating the findings Al-sultan and Al Fawzan (2009) stressed the importance of efficient and effective facility location. Their study however, ranked competitors retail patronage information and information sharing as vital when locating in competitive environment. Contradicting the findings, Penny and Broom (1988) as cited by Wood and Reynolds (2010) study of evolution of UK retailers found that irrespective of the retail environment, the dominant factor in reaching decisions about new sites or in developing trade forecast was the experience of operational managers in the supply chains. The study also sought to establish the extent to which forecasted market share in a location

could provide information on location decisions. Seventy-four point three percent (74.3%) respondents indicated to be in agreement, 15.8% strongly disagreed while 5.5% disagreed. Corroborating the findings Daskin *et al.* (2008) employed the fixed care facility problems in illustrating that any location model adopted needed market share information before models validation. Based on 33 respondents from an exploratory survey, Wood and Tusker (2008) found out that while 100% of the affected firms used sales volume and market share, there was little evidence of database integration in strategic decision making. The author details that exploration and the 'search' approaches were still vital. On whether market size saturation information was vital in branch network decisions, sixty-eight point three (68.3%) of the respondents agreed, nineteen point seven percent (19.7%) strongly agreed, 3.8% disagreed while 3.3% strongly disagreed. The study findings corroborate Mamoun and Akrous (2012) and Sandberg (2014) studies which established that market saturation was a good measure of over representation and could be employed to closure and assortment reduction of affected stores particularly if not flagship. Wood and McCarthy (2014) further concur with the above findings by using UK food retailing industry retailers. The authors found that the retailers controlled their expansion activities through new location space races and market saturation.

The current study also sought to establish whether the number of shopping malls and shopping centers in an area influence branch location decision. Seventy point five percent (70.5%) of the respondents' agreed, 14.8% strongly agreed while 6.6% were indifferent and 8.2% were in disagreement. The study findings corroborate El-Aldly (2007) study which illustrated that shopping malls were an attractive location for retail outlets. The author cited time, information, money, and space as efficiencies established in malls and could lower establishment costs of new retailers. The authors also illustrated that by locating in malls, retailers enjoyed low advertising sunk costs and tenant mix related problems which were cushioned by mall management and anchor stores.

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The study further sought to establish the extent to which transport and inventory holding costs information was vital in branch network expansion. Sixty-three point four percent (63.4%) agreed and 30.6% strongly agreed. Corroborating the findings, Ernie and Rant (2008) reviewed the transport and inventory costs of Sainsbury's and found that the fulfillment factories established on 40 acres and 650,000 centres were targeted at lowering transport and inventory related costs. Other scholars such as Amrouce and Zaccour (2007) had earlier indicated that Sainsbury's six dependency criteria stressed on the use of traded units' bar codes (TUI) aimed to reduce transport and inventory costs of both new and established branches.

On whether pedestrian flows in a branch was vital in network decisions, seventy-five point four percent (75.4%) respondents' agreed, 24.0% strongly agreed while 0.5% was in disagreement. Corroborating the findings Morscett *et al.* (2005) and Chuan *et al* (2011) found out that retail inflow and outflow were vital elements of store success. Contradicting the findings, Dass and Piyush (2012) study on category vulnerability across retailers, found that pedestrian flow mixes had no real bounds since they could be controlled by physical abilities of store checkout counters. Their study however proposed that what needed to be addressed was the speed of checkout as it was a determinant of store selection.

On whether the distance to the distribution centers was vital in branch network expansion decision making, 68.3% of the respondents were in agreement, 24.6% strongly agreed and 6.6% of the respondents disagreed. Corroborating the study findings Wood and Browne (2006) study findings on convenience branch location in Europe, found that before branch establishment site visits was rated 97% as the most important factor in making location decisions. Similar studies by Kan and Weinarter (2013) identified such information by illustrating how retailers were extending their control upstream from DCs to manufacturers in an effort to improve utilization of branch and store logistical assets, reduce wastage and to improve efficiency. Contradicting the findings Calvo and Lang (2015) explain that the distant to distribution centers is not

significant as a factor. To illustrate this the authors used Sainsbury's new supply chain strategy of replacing existing networks of 25 regional distribution centers with automated distribution facilities known as fulfillment factories which have significantly increased efficiency in UK branches. Mapped with flagship fulfillment of 160 docks, supplier goods are received in one side while Sainsbury's trucks are loaded for deliveries to the stores at the other side therefore increasing efficiency.

4.9.5 Branch Location Pearson Correlation

The Pearson correlation of linear association between the branch location and branch network expansion was employed. The significance value was compared to 0.05. The result are shown in Table 4.46.

Table 4.46: Branch Location Pearson Correlation Computation

		BRANCH NETWORK EXPANSION	BRANCH LOCATION
BRANCH NETWORK EXPANSION	Pearson Correlation	1	.473**
	Sig. (2-tailed)		.000
	N	183	183
BRANCH LOCATION	Pearson Correlation	.473**	1
	Sig. (2-tailed)	.000	
	N	183	183

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

The Pearson correlation coefficient was found to be 0.473 at P value of 0.00. These results indicate that according to the study there is highly significant linear correlation between the two variables. The results support the argument by Holweg and Lorentz

(2010) that good location decreases distribution costs of the retail supply chain making branch expansion cheaper. The authors analysis also affirm that location is the most optimal tool of quick analysis of existing stores traffic would be branches and competitor locations when opening new branches. Poor location increases distribution costs making branch network expansion hard. Employing location analytics approach Hillebrand and Bieman (2011) also argue that location is among the main factors positively influencing retail performance particularly using organic growth.

4.9.6 Results of the Regression Analysis on Branch Location

The results of regression analysis on branch location are shown in table 4.47.

Table 4.47: Results of the Regression Analysis on Branch Location

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.473[a]	0.224	0.219	1.67652

    a.   Predictors: (Constant), Branch location

The model, explained 21.9% of the variation in branch network expansion as shown by the adjusted R^2. This supports arguments advanced by Rigby (2007) that a significant level of the variations in branch network expansion can be explained by retail location decisions. Explaining the significance of branch location, the author cites Carrefour's strategy of analyzing location cities, looking for suitable suppliers and income levels to sustain a network of stores before location moves. Kwok (2012) confirms that there is an important and inextricable link between the network strategy and location. The author argues that location decisions have positive relationship with the branch network decision and therefore location decision should be an integral part of retail strategy.

4.9.7 Results of Analysis of Variance on Branch Location

The F test of overall significance was carried out. Results are shown in Table 4.48.

Table 4.48: ANOVA results for Branch Location and Branch Network Expansion

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	146.473	1	146.473	52.113	.000[a]
Residual	508.739	181	2.811		
Total	**655.212**	**182**			

a. Predictors: (Constant), Branch location

The analysis of variance (ANOVA) indicated that the model of branch network expansion with branch location had an F value of 52.113 and P = 0.00. This indicates that branch location is statistically significant in predicting branch network expansion since the P value is less than 0.05. These results are supported by Cao and Dupuis (2009) who argue that the success of retailing significantly depend on lean retailing, a practice synonymous with location standardization, location based on cost-effective relationships and distribution which reduces retail chains minimization of distribution and selling labor costs.

4.9.8 Results of the Coefficients for Regression between Branch Location and Branch Network Expansion

The model equation $y=\beta_4 x_4+\varepsilon$ was used to establish the additional unit change in Branch location that would cause branch network expansion to change by some unit. The results are shown in Table 4.49.

Table 4.49: Coefficient for Regression between Branch Location and Branch Network Expansion

	Unstandardized Coefficients		Standardized Coefficients		
Model	β	Std. Error	Beta	t	Sig.
(Constant)	12.923	0.507		25.510	.000
BRANCH LOCATION	0.257	0 .036	0.473	7.219	.000

a. Dependent Variable: Branch network expansion

The significance level of branch location is less than 0.05. The null hypothesis was rejected. Branch location and its predictors are a meaningful addition to the model. The significance of branch location on branch network has also been supported by Schiele, (2008) who argue that the location of retail activities in relation to buyers and suppliers often contribute to logistics efficiency, supplier access and branch network strategy success. The author argues that firms located within clusters have been found to enjoy productivity, innovation and profitability advantages compared to isolated competitors.

4.9.9 Branch Location Hypothesis Results

There is no significant relationship between branch location and branch network expansion:

This hypothesis was stated as:

$H_{o:}$ $\beta_4 = 0$

$H_{A:}$ $\beta_4 \neq 0$

The hypothesis was tested using a two tailed test as shown in Table 4.50.

Table 4.50: Hypothesis Testing for Coefficients of Regression between Branch Location and Branch Network Expansion

Model	β	t-cal	t-critical
(Constant)	12.923	25.510	
BRANCH LOCATION	0.257	7.219	1.96

The calculated t value of 7.219 is greater than the t-critical of 1.96 and therefore the study rejected that null hypothesis. Studies corroborating the current study are Aoyama (2007) and Gereffi and Ong (2007) who employed DEA models for analysis of intra-chain comparative store efficiency. They significantly related the value of branch location to branch network expansion in examining the competitiveness of the chain as a whole. The authors argue that branch expansion competitiveness should be based on benchmarking the retail outlets which compose the chain for retail success.

4.10 Store Brands

4.10.1 Factor Analysis for Store Brands Items

Store brands had a total of seven (7) items. Five items were confirmed since their factor loads were more than 0.4. This information is presented in Table 4.51.

Table4.51: Factor Analysis for Items Store Brands

Item	Extraction
Store brands highly impacted on inventory levels of a branch	0.780
The brand strength of the store brands	0.721
Number of products as store brands	0.640
The contribution of the store brands to total sales	0.620
Percentage to total products	0.548
Warehouse costs attributed to the store brands	0.461

4.10.2 Number of Store Brands Held by the Supermarket Store

The study sought to establish the number of store brands that were held in branches. The findings are shown in Table 4.52.

Table 4.52: Number of Store Brands Held by the Supermarkets

Number of store brands	Frequency	Percent
1-5	7	3.8
11-15	39	21.3
16 -20	31	16.9
21 and above	106	57.9
Total	**183**	**100.0**

Fifty-seven point nine percent (57.9%) indicated that their stores held store brands above 21, 21.3% had 11-15 while 16.9% held between 16-20 store brands. The least range was between 1-5 (3.8%) store brands. Empirically, the findings of Martenson (2007) indicate that most retailers maintain 18% of total assortment as store brands. Moreover, the study

found that Indian retailers maintain store brand levels of 20 to 50% of the total brands. Contradicting the findings in later studies Kalanit *et al.* (2010) study in Mediterranean countries found out that the numbers of store brands were distinct to the stores and the supplier–retailer power according to porter's five forces.

4.10.3 Descriptive Analysis of Store Brands

The study sought to establish the extent to which store brands would assist in development of new markets. The findings are shown in Table 4.53.

Table 4.53: Respondents Opinion on Store Brands

Statement	Strongly disagree	Disagree	Not Sure	Agree	Strongly agree	Mean
Store brand help in market development	4.9%	13.1%	7.7%	69.9%	4.4%	**4**
Inventory levels of a branch in a market as percentage of total store inventory.	0.5%	4.9%	3.3%	74.9%	16.4%	**4**
The brand strength of the store brands	0.0%	9.3%	6.6%	56.3%	27.9%	**4**
The contribution of the Store brands to total sales	0.0%	2.7%	7.1%	76.0%	14.2%	**4**
Warehouse costs attributed to the store brands as percentage of total costs	3.8%	8.7%	5.5%	69.4%	12.6%	**4**
Average	**1.84**	**7.74**	**6.04**	**69.3**	**15.1**	

On whether Store brand offer helped in market development, sixty-nine point nine percent (69.9%) respondents were in agreement, 4.4% strongly agreed, while in totality 18.0% respondents were in disagreement. Corroborating the findings Oubina *et al.* (2006) concur that store brands introduction could be the best strategy when entering new markets for retailers with an established store image. Tarzjan (2004) as cited by Silpha *et al.* (2009) study applying the interpretative structural modeling in food distribution contradict the above findings arguing that retailers developed store brands to have control over self-space, introduce lower prices to current consumers and to have bargaining powers with the manufacturers.

The current study also sought to establish the impact of store brand inventory levels on branch network decisions. Seventy-four point nine (74.9%) respondents were in agreement, 16.4% strongly agreed, 4.9%disagreed while 0.5% strongly disagreed. The current study findings corroborate Oubina *et al.* (2006) study on relationship of retail brand manufacturers with retailers which found out that inventory levels of store brands in a store information was vital to use in reducing establishment costs of new branches in markets with scanty market information.

The study further sought to establish the extent to which store brands would help in market development and extension of retail supply chains. Fifty-six-point tree percent (56.3%) of the respondents were in agreement, 27.9% strongly agreed while 9.3% strongly disagreed. Corroborating the findings Kremer and Viot (2012) illustrate that store brands are unique brands and exclusive to supply chains. In this case they give a retailer's supply chain some unique identity and competitive advantage. Similar studies by Henly *et al.* (2011) and Sherman and Tuen (2011) indicate that store brand information help retail stores to introduce new networks such as cold and chilled supply chains alongside branch expansion. The study sought to establish the extent to which private labels contribute to the total sales. Seventy-six percent (76.0%) of the respondents were in agreement. Fourteen point two percent (14.2%) highly agreed while 2.7% disagreed. The findings corroborate studies conducted by Hultman *et al.* (2005)

that found that the 20:80 rule was used in keeping store brands in both new and established branches. On a study of store brands competition in the Swedish manufacturing industry, Hultman related store brands to the 20% and the other branded products to 80%. The findings illustrate that manufacturer sales that fell below 80% by store brands indicated that their levels were low and held expansion decision. The study findings also concur with Nielsen (2008) study that found that in west Europe store brands categories accounted for 20% of the fast moving consumer goods and their control in decision making was very vital.

On whether the store brands reduced total costs of branches, 69.4% of respondents were in agreement, 12.6% highly disagreed, and 8.7% disagreed while 3.8% respondents highly disagreed. The current studies corroborate studies by Oubina *et al.* (2006) who found that the use of store brands reduced ullage (transport damage costs), distribution costs and pallet costs. Contradicting the current study Gomez and Rubio (2008) argue that the main reason why retailers employed store brands was not related to branch costs but as a tool of controlling the supply chain costs and reducing dependence on national brands and related retail concentration.

4.10.4 Pearson Correlation Computation for Store Brand

The Pearson correlation of linear association between the two variables was employed. The significance value was compared to 0.05. This is shown in Table 4.54.

Table 4.54: Store Brand Pearson Correlation

		BRANCH NETWORK EXPANSION	STORE BRANDS
BRANCH NETWORK EXPANSION	Pearson Correlation	1	.436[**]
	Sig. (2-tailed)		.000
	N	183	183
STORE BRANDS	Pearson Correlation	.436[**]	1
	Sig. (2-tailed)	.000	
	N	183	183

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

The correlation coefficients between store brands and branch network expansion was found to 0.436 at p = 0.000. The results of 0.436 indicate that according to the study, there is a high positive and significant linear correlation between store brands and branch network expansion. Studies by Armelia *et al.* (2009) also found a positive linear and significant relationship between store brands and branch network expansion. The authors argue that store brands help retailers to win and attain extra negotiation advantages with branch manufacturers during the establishment of new branch networks. Ezrach and Bernitz (2010) studies indicate   show a high positive correlation between store brands and branch network strategy arguing that store brands significantly promoted the sales of retailer branches causing easy breakeven in new locations.

4.10.5 Results of Regression Analysis on Store Brands

Regression analysis was employed to explain the extent to which retail assortment information could be used to predict branch network expansion. The results of the regression analysis are shown in Table 4.55.

Table 4.55: Model Summary for Regression between Store Brands and Branch Network Expansion

R	R Square	Adjusted R Square	Std. Error of the Estimate
.436[a]	.190	.186	1.71229

a. Predictors: (Constant), Store brands

The model used explains 18.6% of the variation in branch network expansion as shown by the adjusted R^2. This supports arguments advanced by Logunar (2005) that a significant level of the variations in branch network expansion can be explained by store brands. The outcome indicated that a good store brand strategy, strengths retail brands strength, is used to follow competitors to new locations and can be used to utilize free capacities existing in both old and new stores. Lincoln *et al* (2006) strengthens the position further by declaring that store brands have a positive effect on retailing which in turn helped in branch positioning during network expansion.

4.10.6 Results of Analysis of Variance on Store Brands

The study tested the overall significance of the model using an F test. The premise hypothesis was:

Ho: the fit of the intercept only model and the store image model are equal

H1: the fit of the intercept only model is changed compare to the store image model

The results are presented in Table 4.56.

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Table 4.56: ANOVA Results for Store Brands and Branch Network Expansion

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	124.530	1	124.530	42.474	.000[a]
Residual	530.682	181	2.932		
Total	**655.212**	**182**			

a. Predictors: (Constant), Store brands

b. Dependent Variable: Branch network expansion

The analysis of variance (ANOVA) indicated that the model of branch network expansion with store brand at F value was 42.474 at P = 0.00. This indicates that there was a highly significant relationship between store brands and branch network expansion in Kenyan supermarkets since P (0.00 < 0.05). This supports Lather and Kaur (2006) who indicate that a store brand growth of 1% stimulates a 0.5% growth in branch network expansion. The authors indicated that the net effect of store brands on branch network expansion can be visualized in both distribution cost and branch operating cost reduction.

4.10.7 Results of the Coefficients for Regression between Store Brands and Branch Network Expansion

Coefficients for regression between store brands and branch network expansion were sought. A low P value (P<0.05) indicates that the null hypothesis can be rejected meaning that a predictor that has a low P value is likely to be a meaningful addition to the sought model.

Table 4.57: Coefficient for Regression between Store Brands and Branch Network Expansion

Model	Unstandardized Coefficients		Standardized Coefficients		
	β	Std. Error	Beta	t	Sig.
(Constant)	12.850	.570		22.560	.000
STORE BRANDS	.244	.037	.436	6.517	.000

a. Dependent Variable: Branch network expansion

According to the results of regression, Store brands have a positive influence on branch network expansion. Comparing the P values 0.000 < 0.05 and therefore the null hypothesis was rejected. Store brands and its predictors are a meaningful addition to the model. The significance of store brands on branch network has also been supported by Hanly *et al.* (2011) who argue that the introduction of store brands prevented exclusive trading and forward integration by manufactured of goods. The authors also illustrated that introduction of store brands forced distribution agents to lower distribution cost causing a multiplier effect of low establishment cost of branches in new markets. Talwar (2010) argues that store brands assist branch establishment by reducing excess stock outs, obsolete stock cost and pull through rates of branch products.

4.10.8 Store Branch Hypothesis Results

There is no significant relationship between store brands and branch network expansion:

This hypothesis was stated as:

$H_{o:}$ $\beta_5 = 0$

$H_{A:}$ $\beta_5 \neq 0$

It was tested using a two tailed test. The results are shown in Table 4.58.

Table 4.58: Hypothesis Testing for Coefficients of Regression between Store Brands and Branch Network Expansion

Model	β	t-cal	t-critical
(Constant)	12.850	22.560	
STORE BRANDS	0.244	6.517	1.96

The calculated t value of 6.517 is greater than the t-critical (1.96) and therefore the study rejected the null hypothesis that there is no significant linear relationship between store brands and branch network expansion in Kenyan supermarkets. In support, Jacobs *et al* (2010) indicate that strong store brands could be employed to cushion branch deficiencies allowing non performing branches to use store brands strategy as an extension strategy. Petty (2010) also indicate that the introduction of store brands awards strong control to the retailers supply chain therefore helping them to have a lot of control on branch decisions.

4.10.9 Multiple Regression Analysis

A multiple regression analysis was conducted to determine the relationship between the variables and branch network expansion. Table 4.59 shows the output of model fitness.

Table 4.59: Regression Analysis for All Variables

R	R Square	Adjusted R^2	Std error of estimate
0.997	0.994	0.994	1.27156

The R coefficient of 0.994 indicates that the independent factors had a positive correlation of 99.4% with branch network expansion. The model equation $Y=\beta_0+\beta_1X_I+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\varepsilon$explains99.4% variations in branch network expansion. The results indicate that combined the five variables explained 99.4% of the variations in branch network expansion.

The significance of the final model stated as:

$$Y=4.555+0.137X_I+0.126X_2+0.123X_3+0.174X_4+0.086X_5$$

Was established by comparing the significance level to 0.05.The significance level is shown in table 4.60.

Table 4.60: Coefficients of Branch Network Expansion Variables

	Sum of squares	df	Means of Squares	F	Sig
Regression	426.827	5	85.365	66.158	.000
Residual	228.386	177	1.290		
Total	**655.212**	**182**			

Comparing the P value 0.00 to 0.05, the P value 0.00< 0.05 and therefore the final model is significantly better in predicting and improving the research ability to predict branch network expansion.

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4.10.10 Results of Hypotheses Test

The results of the regression analysis, indicated that four hypotheses were not confirmed. In order of influence on performance of the procurement department. The research hypothesis testing is summarized in Table 4.61.

Table 4.61: Summary of Results of Hypotheses Tests

Hypothesis	P value	Decision
H_{01}: Store Layout Design does not influence Supermarket Branch Network Expansion.	.000	Rejected
H_{02}: Store Image does not influence Supermarket Branch Network Expansion	.000	Rejected
H_{03}: Retail Assortment does not influence Supermarket Branch Network Expansion.	.000	Rejected
H_{04}: Branch Location decisions do not influence Supermarket Branch Supermarket Network Expansion.	.000	Rejected
H_{05}:Store Brands do not influence Supermarket Branch Network Expansion.	.000	Rejected

4.11 Modeling of Factors Using the Interpretive Structural Modeling (ISM)

The interpretive structural modeling (ISM) is a process that helps a group of people to structure their collective knowledge and model relationships. According to Kanungo *et al.* (2006) the means for each variable relation response is calculated. A mean of 0 or 1 indicates perfect agreement among all respondents. A mean lying between O and 1 would indicate variation of opinion among respondents and would be exposed to the 50% rule. In the event this conditions are not met experts' opinion is sought until perfect agreement is arrived at.

The results found provided input for the structural self-interaction matrix (SSIM). This matrix provides an initial notion of how the factors affecting branch network expansion are related. According to Siong *et al.* (2006) and Tabrizi, and Nazli (2010) the structural self-interaction matrix representing directional relationships among variables was developed using four symbols:

V: Criterion i will assist to reach criterion j;

A: Criterion j will assist to reach criterion i;

X: Criterion i and j will assist to reach each other; and

O: Criterion j and i are unrelated.

This is shown in Table 4.61.

Table 4.61: Structural Self-Interaction Matrix (SSIM)

	(A)Store layout	(B)Store image	(C)Retail assortment	(D)Branch location	(E)Store brands
(A) Store layout	1	X	V	O	V
(B) Store image	X	1	V	X	X
(C)Retail assortment	A	A	1	A	A
(D) Branch location	O	X	V	1	A
(E) Store brands	A	X	V	V	1

The SSIM matrix was converted into a binary matrix (0 or 1) which provided the reachability matrix by substituting V, A, X, O by 1's and 0's. According to Singh and Kant (2008) and Kannan, Devika and Noorus (2010) the rules for the substitution of 1's

and 0's are the following: if the (i, j) entry in the SSIM is V, then the (i, j) entry in the reachability matrix becomes 1 and the (j, i) entry becomes 0. If the (i, j) entry in the SSIM is A, then the (i, j) entry in the reachability matrix becomes 0 and the (j, i) entry becomes 1.If the (i, j) entry in the SSIM is X, then the (i, j) entry in the reachability matrix becomes 1 and the (j, i) entry also becomes 1. If the (i, j) entry in the SSIM is O, then the (i, j) entry in the reachability matrix becomes 0 and the (j, i) entry also becomes 0.The results are shown in Table 4.61

Table 4.62: Binary (Reachability Matrix)

	(A)Store layout	(B)Store image	(C)Retail assortment	(D)Branch location	(E)Store brands
(A)Store layout	1	1	1	0	1
(B)Store image	1	1	1	1	1
(C)Retail assortment	0	0	1	0	1
(D)Branch location	0	1	1	1	0
(E)Store brands	0	1	1	1	1

The reachability set for a variable consists of the variable itself and the other variables, which it influences. The antecedent set consists of the variable itself and other variables, which may influence it**.** The reachability matrix was further portioned to find the driving power and the dependence power using the MICMAC approach developed by Godet (1975) and used by Sagheer, Yadav and Deshmukh (2009).This is shown in Table 4.63.

Table 4.63: Partitioning the Reachability Matrix

	(A)Store layout	(B)Store image	(C)Retail assortment	(D)Branch location	(E)Store brands	Driving power
(A)Store layout	1	1	1	0	1	**4**
(B)Store image	1	1	1	1	1	**5**
C)Retail assortment	0	0	1	0	1	**2**
D)Branch location	0	1	1	1	0	**3**
(E)Store brands	0	1	1	1	1	**4**
Dependence power	**2**	**4**	**5**	**3**	**4**	

Results from the study show that store layout has a driving power of 4 and a dependence power of 2. Store image a driving power of 5 and a dependence power 4, retail assortment has a driving power of 2 and a dependence power of 5, branch location has a driving power of 3 and a dependence power of 3 and store brands has a driving power of 4 and a dependence power of 4.The variables are classified hierarchically through iterations as shown in Tables 4.64, 4.65 and 4.66.

Table 4.64: Table Iteration 1

Variable	Reachability	antecedent	Intersection	Hierarchy
(A)Store layout	A,B,C,E	A,B	A,B	
(B)Store image	A,B,C,D,E	A,B,D,E	A,B,D,E	
(C)Retail assortment	C,E	A,B,C,D,E	C,E	I
(D)Branch location	B,C,D	B,D,E	B,D	
(E)Store brands	B,C,D,E	A,B,C,E	B,C,E	

Table 4.65: Table Iteration 2

Variable	Reachability	Antecedent	Intersection	Hierarchy
(A)Store Layout	A,B,E	A,B	A,B	
(B)Store Image	A, B,D,E	A,B,D,E	A,B,D,E	II
(D)Branch Location	B,D	B,D,E	B,D	II
(E)Store Brands	B,D,E	A,B,E	B,E	

Table 4.66: Iteration 3

Variable	Reachability	Antecedent	Intersection	Hierarchy
(A)Store Layout	A,E	A	A	V
(D)Store Brands	E	A,E	E	1V

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4.11.1 Variable Clustering

Using the MICMAC analysis table 4.63, the variables are classified into four clusters using their driving power and dependence (Singh & Kant, 2008, Sangheer, 2009 and Kannan *et al.* 2010). The first cluster consists of the autonomous variables that have weak driver power and weak dependence. These variables are relatively disconnected from the supply chain and networks, with only few links, which may be strong. The second cluster consists of the dependent variables that have weak driver power but strong dependence. The third cluster has the linkage variables with strong driving power and also strong dependence. These variables are unstable and any action on these variables will have an effect on others in the supply network and also a self-feedback. The fourth clusters variables having strong driving power but weak dependence.

High

Store layout   *(2,4)

Image   *(4,5)

Store brands   *(4,4)

Branch location

*(3,3)

Assortment

*(5,2)

Driving power

Low

Low   High
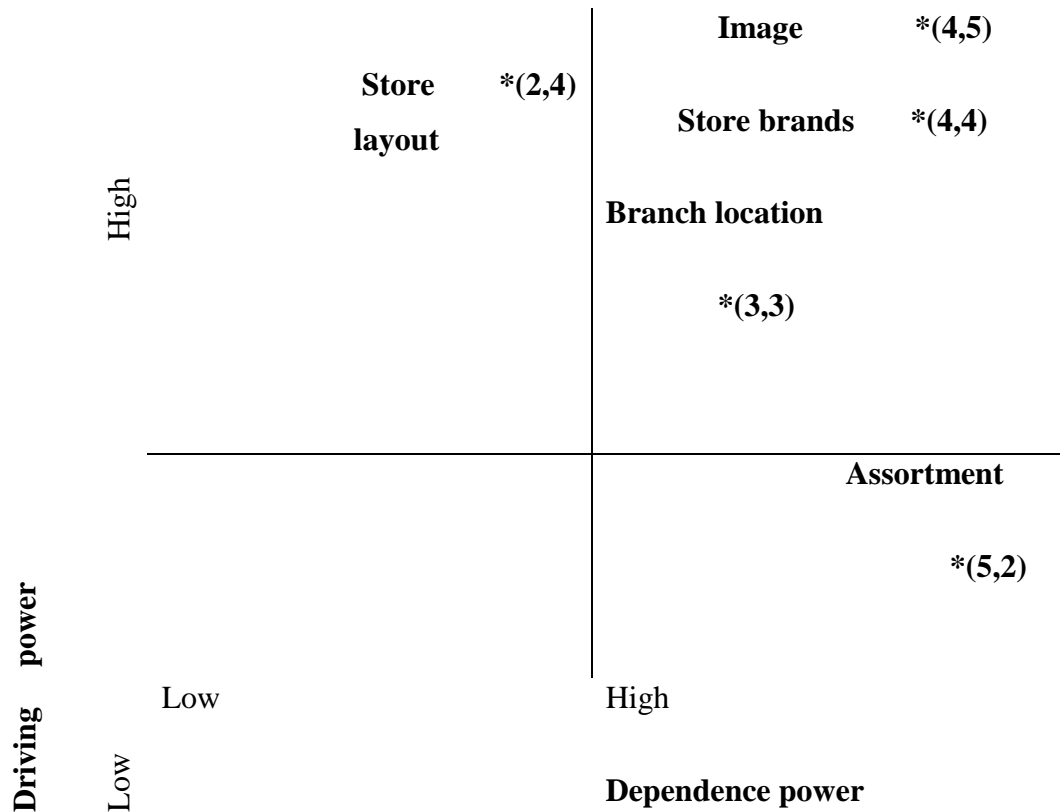
Dependence power

Figure 4.4: Driving Power-Dependence Diagram

During retail and supply chain management decision making retail assortment is in cluster 11 and is highly dependent on other variables as it has weak driving power. Store image, location and store brands have strong dependence and driving powers. They are linkage variables. These variables are unstable, in the sense that any action on these issues will have an effect on other variables and also a feedback on themselves. Branch layout is in cluster IV. These variables are the key drivers for branch network expansion. Management has to pay maximum attention to these variables to get quick results. Using the hierarchy levels and the iteration table 4.64 the interpretative structural modeling (ISM) model is developed. This is shown by Figure 4.5.

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Branch network expansion

Store Image

Branch location

Store Brands

Store layout
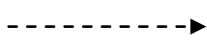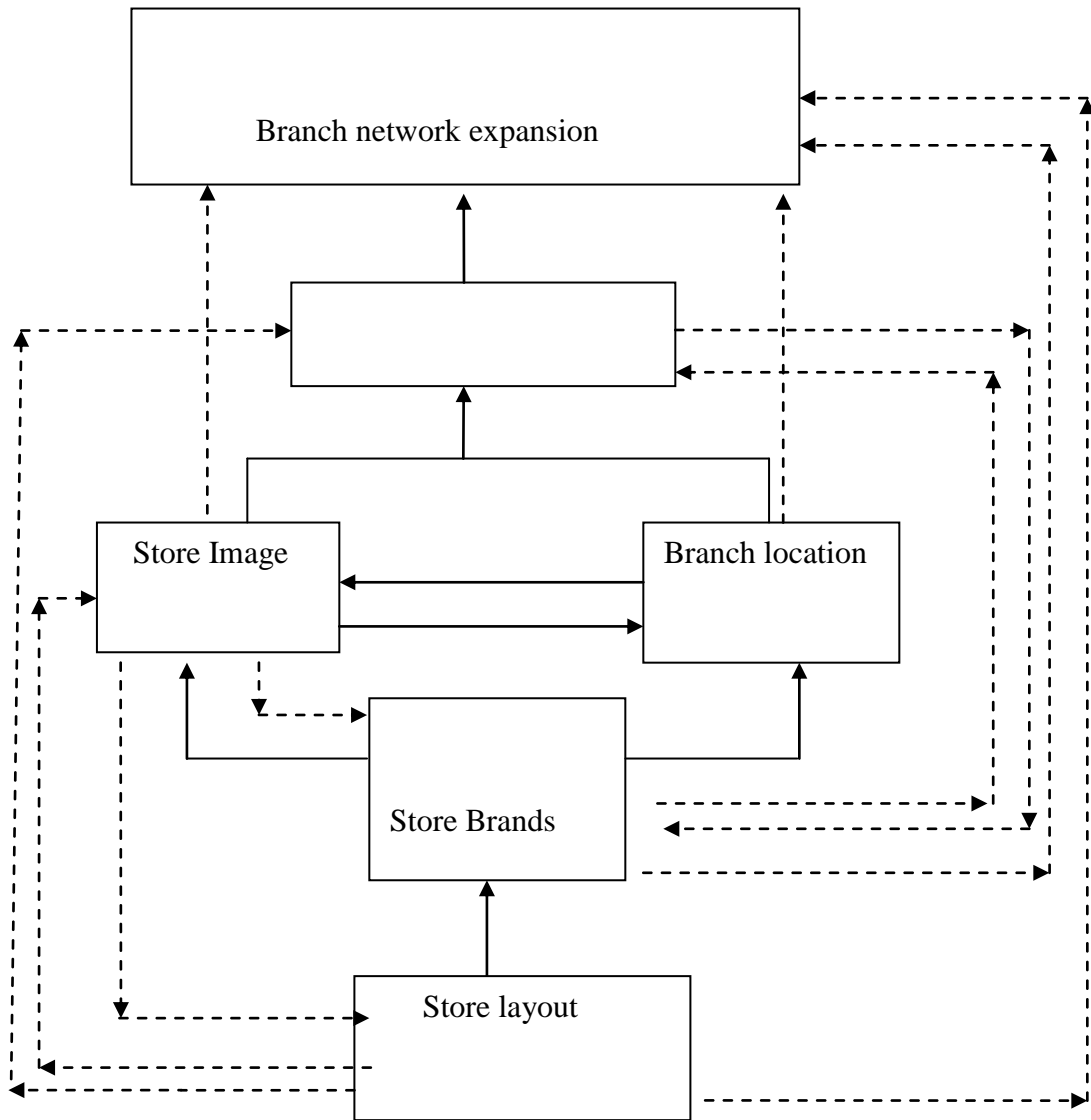
- - - - - - - - ▶   Possible alternatives employed by supermarkets supply chains

_____   Optimal alternatives proposed to be employed by supermarkets supply chains

Figure 4.5: Interpretive Structural Model

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings and the implications based on the objectives of the study. Major conclusions drawn from the study are also discussed. This is followed by key recommendations and suggestions for further research.

5.2 Summary of the Findings

The study aimed at establishing a model of the factors influencing branch network expansion in supermarket retailing in Kenya. The independent variables were store layout design, store image, retail assortment, branch location and store brands. The study revealed that there was significant relationship between the variables and branch network expansion. The study further revealed that the way the variables are placed in the decision hierarchy affected variables joint outcome of the supply chain.

5.2.1 Store Layout Design

The study established that supermarket considered store layout design as a significant variable in their operations. Successful supermarket retailers defined supermarket arrangement in terms of store layout and efficient execution of in-store logistics as dictated by space. The study established that such benefits were not likely to be experienced unless retailers' store's layout designs had similarities with their warehouse, supplier's warehouses and distribution centers. The study established that logistics collaboration could be attained through store layout strategy. This study demonstrated that comprehensive store design, including in-store cues could help retail chain enhancement particularly when using consignment models. The above notwithstanding, the study established that store layout design had a high driving power and low

dependence level. The optimal ISM model established that for optimal results store layout could be placed at the first hierarchy of the branch network expansion model. According to the model, since store layout had low dependence it could have a high initial driving power in branch network expansion.

5.2.2 Store Image

The study established that successful supermarkets invested in buyer seller relationships. In addition, a long-term view of the supplier along the supply chain was encouraged through tiering suppliers. The study further established that branch reputation promoted establishment of branches and gave retailers negotiation powers against their suppliers. In addition, it was established that brand image accruing from delivery lead-times significantly affected the success of new branches and assisted retailers in contract negotiation when locating in malls.

The descriptive analysis established that that relationship between store image and branch expansion is significant to the extent of using flagship stores to promote startups or underperforming branches. Using the optimal model, the study established that store image optimally assisted in branch network expansion if it acted as a linkage factor alongside branch location since both had a high driving and dependence level. The study also linked store image to being unstable in the retail supply chain. This implies that failure to strategically maximize on store image by retail chains could have an effect on the variable as well as other variables of branch network expansion.

5.2.3 Retail Assortment

The study established that supermarket retailers attached a lot of importance on the average product index while developing optimal assortment held by retailers and while managing lead-times and stock outs. Using the descriptive analysis, the study also established that merchandise length was vital on branch network expansion. The study associated the growth of merchandise to extension of branches and established that most

retailers in Kenya preferred direct ordering approaches as they consolidated and distributed their stocks through Hub and spoke distribution centers.

The study also established that the balance between consignment and fixed assortments assisted in new branches success. Using descriptive statistics, the study established the numbers of product lines and assortment stocked in stores dictated when to establish new branches. The optimal ISM model established that retail assortment is an automatic follower of other variables since it had a high dependence and low driving power.Retail assortment highly depends on other variables to provide an optimal effect.

5.2.4 Branch Location

The study established that most supermarket retailers located their branches in the general business district seeking good locations to lower distribution costs. The study found out that most supermarket stores started opening in cities and then shifted focus to opening smaller stores next to bus stations in the central business districts where they sought shopping malls tenant mix model. The descriptive statistics indicated that bus stations were targeted for convenience purposes of middle income. The study also established that transport and inventory holding costs information was vital in branch network expansion and the distance to the distribution centers was vital in branch network expansion decision. The optimal ISM classified, branch location as a linkage factor with a high dependence and driving power, whose strategic implementation gave quick results.

5.2.5 Store Brands

The study established that most successful retailers in Kenya stores held store brands numbers above 21. The descriptive statistics established that store brands inventory levels would significantly assist in development of new markets and new branches in addition to crafting exit strategies of non performing branches. The study further established that store brands significantly reduced branch costs and high supplier power.

The optimal ISM model established that store brands had a high dependence and driving power. The variable had an effect on store image and branch location.

5.3 Conclusion

The proposed optimal model is presented by Figure 4.5. Further conclusions are given by the objectives:

5.3.1 Store Layout Design

The study concludes that successful supermarket adopted store layout designs that were similar to their other stores, distribution centers and those of their suppliers. The head office and other stakeholders were also considered when establishing store layout design. Supermarket retailers also treated their store layout space as a scarce resource and highly employed consignment models. The study established that store layout design is independent in the retail supply chain.

5.3.2 Store Image

The study identified that supermarket retailers established image through buyer seller relationships. The established images were also used during negotiation against their suppliers, competitors and in malls when seeking tenancy. The study further established that agile supermarkets promoted the image of new branches to the suppliers, distributors, third parties service providers and customers in order to reduce entry costs. The study also identified that most supermarkets giants used the 3 in 7 approach when establishing or closing branches. Store Image was found to be a linkage with high driving force.

5.3.3 Retail Assortment

The study concludes that 11-15 were the ideal product lines on every 12000 square feet of retail space. The study also identified that retailer and head offices kept many suppliers just in case. It was found that assortment visibility in branches and consignment models were used to reduce procurement cost assisted in product return through reverse logistics. The study identified that retailers ordering initiatives were informed by go down, direct and distribution centres. It was concluded that retail assortment highly dependents on other variables.

5.3.4 Branch Location

The study identified that most supermarket retailers located their branches in the general business district. The study further established that retailers were better off if flagship stores were started in cities and extended to other areas. Moreover, it was established that strategic supermarkets employ the Greenfield strategy of acquiring other retailers in the malls. Based on the ISM model, the study identified that branch location has a high driving and dependence power.

5.3.5 Store Brands

The study established that most successful retailers in Kenya stores held store brands above 21 and the store brands were used for controlling the powers suppliers had over supermarkets. Store brands were established to have high dependence power on store layout but a high driving power on both branch location and image.

5.4 Recommendations

Based on the findings and conclusions, the study makes recommendations that could improve supermarket retailing network establishment.

5.4.1 Store Layout Design

The study recommends that supermarket retailers should develop store layout designs that are similar to the stores, distribution centers as well as those of their suppliers. There is need that the store layout adopted considers the expansion strategies of head office and the main stakeholders. There is also need that supermarket retailers treat the store layout space as a scarce resource. Within the retailers employing consignment models, it is recommended that the retailers' layout design should be adopted by the suppliers particularly if retail chains are established and retailers had a strong image. The study established that store layout design is independent in the retail supply chain. Consequently, failure to maximize the layout decisions could have a negative effect on other variables of branch network expansion because of its high driving power. The study recommends that store layout could optimally be employed if it was strategically placed at the base of the hierarchy.

5.4.2 Store Image

The study recommends that supermarket retailers should ensure that their retail stores develop some image through buyer seller relationships. The study also recommends that retailers with established images could use it during negotiation against their suppliers, competitors and in malls when seeking tenancy. Store image could be developed through delivery lead-times of retail head offices, suppliers-retailers relationships and supplier development offered as well as marketing aspects of the retail chain. The study further recommends that supermarket flagship stores should be able to promote the image of new branches to the suppliers, distributors, third parties service providers and customers in order to reduce entry costs. Nevertheless, individual store ordering was recommended if branches sought to increase their image. The study also recommends the use of 3 in 7 approach of network overhaul in situations where the image of the store was decreasing. The optimal ISM model recommends that since store image was linkage, managers could be able to highly employ its driving force.

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5.4.3 Retail Assortment

The study established that supermarket retailers attached a lot of importance on the average product index in developing SKU's that were optimal to be held by retailers. The study recommends product lines 11-15 to be the ideal on every 12000 square feet of retail space. The study further recommends that the impact of merchandise length should be highly addressed during product procurement and that consignment models be employed to provide stocks to new branches. The retailer and head offices should have many suppliers to order from just in case since merchandise levels were found to be highly associated with branches extension. The study also recommended that retailers should establish assortment visibility in branches and employ consignment models to reduce procurement cost and provide easy product return through reverse logistics. The consignment model was found to hedge retailers against shrinkage costs for products such as meat. The study further recommends that retailers ordering initiatives should be informed by go down, direct and distribution centres. Finally, retail assortment information was vital since it could be used to close branches through assortment reduction or forecasting assortment needs of non performing branches. The ISM established that retail assortment highly dependents on other variables and the study therefore recommended that assortment be placed after store image and branch location in the model.

5.4.4 Branch Location

The study established that most supermarket retailers located their branches in the general business district. For this reason, it is recommended that general business district be targeted by new supermarket retailers. The study further established that retailers were better off if flagship stores were started in cities and extended to other areas. The study also recommends that flagship be started in cities next to bus stops. The study further advances the importance of site visits before location decisions. Moreover, it is recommended that retailers employ the Greenfield strategy of acquiring other retailers in

the malls. Location standardization, cluster location, the use of Mall tenant mix and time model was recommended for optimal branch location decisions. Based on the ISM model, the study recommended swift implementation of branch location based on its linkage position, high driving power and high dependence power.

5.4.5 Store Brands

The study established that most successful retailers in Kenya stores held store brands numbers above 21. In this case there is need that supermarket chain and their branches maintain store brands above 21 in number. Moreover, the study recommends that store brands should be developed by retailers for purposes of market entry and supplier power control during inventory negotiations. Store brands were also established to have high dependence power on store layout but a high driving power on both branch location and image. It is therefore recommended that the variable be given priority immediately after store layout.

5.4.6 Implications of the study to practice

The development of branch network expansion strategy requires a consideration of the relative importance of variables with each construct. For instance, when considering store layout and design consideration of similarity of distribution centers and that of the suppliers are vital. There is need that store layout should be placed at the base of the model. Its high driving power and low dependence power would optimally drive the other variables in the model. Expanding retailers are also advised to focus on using their store image to negotiate in malls. Store image has high driving power and a high dependence level. In the optimal model this is placed at the third level together with branch location. Based on the ISM model, Supermarket Retailers need swift implementation of branch location based on its linkage position, high driving power and high dependence power so that the management could monitors the variable while preparing their assortments and moves towards branch network expansion. The

implication is that Kenyan supermarkets retailer firms must increase their investments in model application and use, in relation to identifying the need of knowledge sharing on the contribution of Store Layout Design, Store Brands, Store Image, Branch Location and Assortment.

5.4.7 Implications of the study to methodology

Most of the studies carried out in this area have stopped their analysis at the multiple linear regression analysis level as their major model of the relationship. However, in Supply Chain Management multiple linear regression models failed short of explaining the operational aspect of variables. The interpretive structural model was therefore used to arrive at the best model of the study indicating Supermarket Retail performance as a result of combination of store layout Design, Store Image, Retail Assortment, Branch Location and Store Brands. Employing the ISM Model, it was evident that strategic branch network expansion does not arise directly from different variables but only from the interactions and correct placement of all variables analyzed.

5.5 Areas for Further Research

Despite the agreed importance of the identified variables, they are not the only variables affecting branch network expansion. Future researchers are encouraged to take into account the impact of the other variables. Secondly, the data are from one country yet the successful retailers have extended to other East African countries and caution should be exercised when generalizing findings to other geographic regions. Finally, this model needs further validation over a period of time.

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Appendix 1: Introduction Letter

Jomo Kenyatta University of Agriculture and Technology

P.O Box 62000,

Nairobi.

Dear Respondent,

<u>**Ref: Questionnaire for A Research Titled Proposed Model for Branch Network**</u>

<u>**Design of Supermarket Expansion in Kenya**</u>

I am a Phd degree student at Jomo Kenyatta University of Agriculture and Technology (JKUAT). This study is carried out in partial fulfillment for the award PhD of supply chain management. This research focuses on how supermarket branch network can be successfully be implemented in Kenya.

Its overall aim is to establish a model guiding successful implementation of supermarket branch network expansion. This survey aims to seek expert opinion to identify the understanding of branch network expansion variables and factors likely to lead to their successful implementation. It will also elicit other issues related to the variables as employed by the five supermarket leaders in the market.

The survey should take no more than 20-30 minutes to complete. I would appreciate if you could complete the survey within the next one week.I will be quite grateful if you will provide the information sought by the tools. Please note that honest answers will be valuable to this study. Thank you.

Yours Truly,

Signature

Denis Ouma

Appendix 11: Questionnaire

1.0 General information

1.1. Designation ………………………………

1.2: Supermarket ………………………………

1.3: Branch …………………………………

1.4: How long has this branch been operating

☐ Less than 1 year ☐ 2-5years ☐ 5 and above

1.5 How long have you worked with your supermarket

☐ Less than 1 year ☐ 2-5years ☐ 5 and above

1.6 What is your target market?

☐ High income ☐ Mid income ☐ Low income ☐ all income groups

2.0 Store layout and design

These statements are to collect data in relation to store layout and design. TICK THE CORRECT ONES

2.1: While inside the supermarket how many pathways do you employ?

☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16 -20 ☐ 21-25

2.2: How many display formats do you have offer?

☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16 -20 ☐ 21-25

Please indicate by providing the relevant rating using the following scale. 1= Strongly Disagree, 2= Disagree, 3=Not Sure, 4= agree, 5= Strongly Agree

		Strongly disagree	Disagree	Not sure	Agree	Strongly agree
		1	2	3	4	5
2.3	The store layout defines way the supermarket is arranged	☐	☐	☐	☐	☐
2.4	The Population density determines moves to establish new branches	☐	☐	☐	☐	☐
2.5	Store traffic flow levels determines when to establish other branches	☐	☐	☐	☐	☐
2.6	The number of store shopping paths indicates when to establish new branches and store saturation	☐	☐	☐	☐	☐
2.7	The store layout and design will dictate the amount of maximum inventory that a store can handle	☐	☐	☐	☐	☐
2.8	The retail hotspots average revenue will signal need to open new branches	☐	☐	☐	☐	☐
2.9	Average transactions per counter as a fraction of floor space in ft as ratio benchmarks	☐	☐	☐	☐	☐
2.10	Floor layout as determines the nominal area of stores	☐	☐	☐	☐	☐
2.11	Retail costs per square feet signals new branch initiatives	☐	☐	☐	☐	☐
2.12	Store layout affect branch location decisions	☐	☐	☐	☐	☐
2.13	Store layout affect branch store image	☐	☐	☐	☐	☐
2.14	Store layout affect store brand strategy	☐	☐	☐	☐	☐

3.0 Concept of store Image

These statements are to collect data in relation to branch image. Please indicate by providing the relevant rating using the following scale. 1= strongly disagree, 2= Disagree, 3=Not Sure,4= Agree, 5= Strongly Agree

3.1: Your supermarket has invested a great deal in building up our major customer and supply business

☐   Strongly Disagree   ☐Disagree ☐Not Sure☐Agree   ☐Strongly Agree

3.2 Our branch reputation in the market promotes our store

☐   Strongly Disagree   ☐Disagree ☐Not Sure☐Agree   ☐Strongly Agree

	Rank	Strongly disagree	disagree	Not sure	agree	Strongly agree
3.3	Branch image strength level is a predictor of new expansion initiatives	☐	☐	☐	☐	☐
3.4	The store image determines setup costs of new branches	☐	☐	☐	☐	☐
3.5	The level and Knowledge of the store image assists in market development	☐	☐	☐	☐	☐
3.6	The delivery lead times established indicates the success of new branch	☐	☐	☐	☐	☐
3.7	The branch power helps the store in negotiating	☐	☐	☐	☐	☐

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	withmallsduring location					
3.8	The store image power helps new store negotiation with suppliers	☐	☐	☐	☐	☐
3.9	The use of consignment sales model provides ready stocks for new branches	☐	☐	☐	☐	☐
3.10	Store image affect store brand strategy	☐	☐	☐	☐	☐
3.11	Store image affect store layout strategy	☐	☐	☐	☐	☐
3.12	Store image affect branch location strategy	☐	☐	☐	☐	☐

4.0. Retail Assortment

These statements are to collect data in relation to Retail assortment. TICK THE CORRECT ONES

4.1: How many product lines do you stock in the supermarket?

☐   1-5   ☐6-10   ☐11-15   ☐16 -20 ☐More than 20

4.2: Product assortment information is vital in achieving branch network expansion

☐   Strongly Disagree   ☐Disagree   ☐Not Sure☐Agree   ☐Strongly Agree

4.3: Which one of the following ordering initiatives do you employ?

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☐ direct ordering ☐Head office dependent ☐ Godown suppliers☐ disribution centres ☐ Mix of all

By providing the relevant rating shows the degree of your agreement with the statements based on your personal expertise and experience, and by using the following scale:

1= Strongly Disagree,2= Disagree ,3=Not Sure,4= Agree ,5= Strongly Agree

		Strongly disagree	disagree	Not sure	agree	Strongly agree
4.4	Average item index is a determinant of the number of items held.	1	2	3	4	5
4.5	Length of the merchandise determines new branch establishment	☐	☐	☐	☐	☐
4.6	Dispersion of attribute levels saturation determines moves to new branches	☐	☐	☐	☐	☐
4.7	Consignment supplier mix determines the success of new branches	☐	☐	☐	☐	☐
4.8	Knowledge about retail assortment assists your branch to reserve capacity in factories	☐	☐	☐	☐	☐
4.9	Knowledge about retail assortment assists your branch to ensure	☐	☐	☐	☐	☐

	inventory is positioning					
4.10	Retail assortments of the store assists new branches to establish ordering patterns and good stock control	☐	☐	☐	☐	☐
4.11	Retail assortments assists new branches to quickly establish a direct ordering of stocks	☐	☐	☐	☐	☐
4.12	Store assortment affect branch location strategy					
4.13	Store assortment affect Store image strategy					
4.14	Store assortment affect store brand strategy					

5.0 Branch Location

These statements are to collect data in relation to the concept store location. TICK THE CORRECT ONES

5.1: Where is yourbranch Located (tick)

☐ General Central business district ☐estate ☐next to busstop ☐mix

5.2: What is the distance between your store and the next bus stop?

☐ Less than 5kms ☐6-10kms ☐11-15kms ☐16 -20kms ☐More than 20kms

5.3: What tenant mix do you have in the places where you are located

☐   Shopping malls   ☐Open air market stalls ☐Open air market stalls ☐Single shops ☐Assortment of tenants

Please indicate by providing the relevant rating using the following scale .1= Strongly Disagree, 2= Disagree, 3=Not Sure, 4= Agree, 5= Strongly Agree

		Strongly disagree	Disagree	Not sure	Agree	Strongly agree
		1	2	3	4	5
5.4	The projected sales volume of an area acts as a pull factor to new branches	☐	☐	☐	☐	☐
5.5	Retail patronage numbers is a determinant of branch expansion	☐	☐	☐	☐	☐
5.6	Market share in a location acts as a pull factor to new branches	☐	☐	☐	☐	☐
5.7	Market saturation guide creation of new branches	☐	☐	☐	☐	☐
5.8	Number of malls and shopping centres around an area acts as a pull factor to new branches	☐	☐	☐	☐	☐
5.9	Transport and inventory holding costs will determine branch expansion initiatives	☐	☐	☐	☐	☐
5.11	Branch retail inflow/outflow guide in branch decisions	☐	☐	☐	☐	☐
5.12	Retail area population growth	☐	☐	☐	☐	☐

	determines location decisions					
5.13	Distribution centres distance determines location decisions	☐	☐	☐	☐	☐
5.13	Branch location affects Store imagestrategy	☐	☐	☐	☐	☐
5.14	Branch location affects Store assortment strategy	☐	☐	☐	☐	☐
5.15	Branch location affects Store brand strategy	☐	☐	☐	☐	☐

6. 0 Concept of store brands

These statements are to collect data in relation to Store Brands.

6.1 How many products do you have store brands for?

☐   1-5   ☐6-10   ☐11-15   ☐16 -20   ☐21 and above

Please indicate by providing the relevant rating using the following scale

1= Strongly Disagree, 2= Disagree, 3=Not Sure,4= Agree, 5= Strongly Agree

		1	2	3	4	5
6.2	Store brand percentage to total affect store brand	☐	☐	☐	☐	☐
6.3	Inventory levels of store brands signal help to establish new branches	☐	☐	☐	☐	☐

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		1	2	3	4	5
6.4	The brand strength of the store brands will help in new market development	☐	☐	☐	☐	☐
6.5	The saturation level of store brands help as a guide into new markets	☐	☐	☐	☐	☐
6.6	The contribution of the store brands to total sales signal need to offload the extra to other branches	☐	☐	☐	☐	☐
6.7	Warehouse costs attributed to the Store Brand as signal private label saturation	☐	☐	☐	☐	☐
6.8	Store brands affect store layout design decisions	☐	☐	☐	☐	☐
6.9	Store brands affect branch location strategy	☐	☐	☐	☐	☐
6.10	Store brands affect store image decisions	☐	☐	☐	☐	☐
6.11	Store brands affect store image strategy	☐	☐	☐	☐	☐

7.0 Branch network expansion

7.1: How many branch networks does your supermarket have?

☐   0-5 ☐6-10 ☐11-20 ☐21-30 ☐31-40 ☐41-50 ☐Above 50

		1	2	3	4	5
7.2	Branch network decisions in your store consider population density per store	☐	☐	☐	☐	☐
7.3	Do you think that branches' initiatives are depended on net economic profit	☐	☐	☐	☐	☐
7.4	Retail saturation level of the place determines new branch opening	☐	☐	☐	☐	☐

7.5	The store number of branches in that locality is a determinant of branch network expansion	☐	☐	☐	☐	☐
7.6	Percentage increase of sales to population increase probability of branch network expansion	☐	☐	☐	☐	☐
7.7	Percentage of branch transactions as ratio of sales of the whole supermarket determines branch network expansion	☐	☐	☐	☐	☐

7.8 For the previous five years. Kindly provide the following information from your records

	2011	**2012**	**2013**	**2014**
Number of branches opened				
Number of branches closed				
Approximate net profit				

Thank you

Appendix III: Interview Guide

1. How long have you worked with your current supermarket?
2. Can you briefly explain how your supermarket approaches new markets?
3. Did it increase the efficiency of your supermarket chains '? If so, how?
4. Is there any benefit of considering branch location when designing retail assortment?
5. In your opinion do you think that store brands assist retail assortment in any way?

   Is there any other assistance of the advised solutions you have mentioned?
6. What have been the biggest challenges in implementing and using consignment models for your clients?
7. According to you how does store image assist store layout design? Do they also assist each other?
8. What are the main limits of combining the following variables: store layout design: store Image: branch location: retail assortment and store brands?
9. According to you, is there something you definitely can include from the variables?
10. According to you, what are the key success factors of a supermarket operation in the context of these variables?

Appendix IV: Table of Beta Values

Model	Beta Values	
β₀,	4.555	
Store Layout	0.137	
Store Image	0.126	
Retail Assortment	0.123	
Branch Location		0.174
Store Labeling		0.086

Appendix V: List of Branches in the Study

1. Naivas East Gate
2. Naivas Eldoret
3. Naivas Imara Daima,
4. Naivas Komarrock,
5. Naivas Ltd:Eldoret
6. Naivas Ltd:Jomo Kenyatta
7. Naivas Nakuru:Sc
8. Naivas Ngong Road,
9. Naivas Ronald Ngala,
10. Naivas Westlands,
11. Nakumatt Bamburi
12. Nakumatt Cinemax
13. Nakumatt Eldoret, Uganda Rd,
14. Nakumatt Galleria Mall
15. Nakumatt Holdings Ltd Eldoret
16. Nakumatt Holdings Ltd:Kisumu
17. Nakumatt Industrial Area
18. Nakumatt Lifestyle
19. Nakumatt Mega
20. Nakumatt Nextgen
21. Nakumatt Nyali
22. Nakumatt TRM
23. Nakumatt Ukay
24. Nakumatt Village Market
25. Tuskys Buffalo
26. Tuskys Greenspan
27. Tuskys Kakamega
28. Tuskys OTC
29. Tuskys Supermarket (United)
30. Tuskys Supermarket Hyrax
31. Tuskys Supermarket (Zion)
32. Tuskys Thigiri Branch
33. Tuskys Tom Mboya
34. Uchumi Eldoret
35. Uchumi Supermarkets City Square
36. Uchumi Supermarkets Kericho
37. Uchumi Supermarkets Kisumu
38. Uchumi Supermarkets Langata Hyper
39. Uchumi Supermarkets Ltd, Eldoret
40. Uchumi Supermarkets Ngong Hyper
41. Uchumi Supermarkets Westlands
42. Ukwala Supermarket Swan Center :Kisumu
43. Ukwala Supermarket (Nakuru) Yogi Plaza
44. Ukwala Supermarket Kenyatta Ave, Nakuru
45. Ukwala Supermarkets Tom Mboya