

**SALES FORECASTING METHODS USED IN LARGE FAST
MOVING CONSUMER GOODS MANUFACTURING FIRMS
OPERATING IN KENYA**

BY

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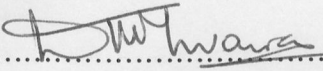
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DECLARATION

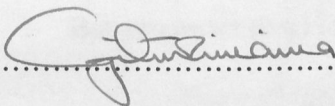
This research project is my original work and has not been submitted for a degree in any other university.

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Date..... 20th January 2005

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

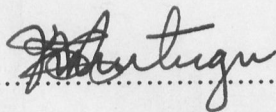
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I am grateful to all those who directly or indirectly contributed to the completion of this work. Sincere thanks to my committed supervisors Dr Gituro Wainaina and Mr Thomas Munugu for their guidance and contribution throughout the period of conducting the study. I salute you for your patience, understanding and availability even at odd times.

DEDICATION

Special thanks to all my family members: My loving wife Agnes, a source of emotional support and a first check for anything I do, thanks for bearing my frequent absence from home; my little son Mwaura whose sleepless nights gave me a chance to wake up and read; my dear mum-Mrs Mumbi Mwaura for her firm belief of excellence in life through education and her kin interest to the completion of this work, my brother Munyua Mwaura

In memory of my late father Mr J. Mwaura Munyua.

(Lecturer UON) for his advice and edit; and my sister-in-law Esther Njanbi for her valued efforts in typing this work.

You foresaw the future and prepared well by investing in education.

But you never lived long to enjoy the fruits of your hard work.

You will forever be my source of inspiration.

Lastly, I cannot forget to acknowledge the manufacturing firms and other institutional bodies that cooperated with me to realize this piece of work, plus all those not mentioned here but participated in many different ways to the completion of this study. To all of you, I say *Merci beaucoup* and may God bless you.

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ABSTRACT

One challenge that manufacturing firms in Kenya face today, is the development and implementation of a reliable sales forecasting process, in the advent of constantly changing consumer demands. Sales forecasting in a large manufacturing operation, ought to be a dependable process which will deliver an effective response to a wide range of consumer demand patterns. For the FMCG category of goods, a sale on time is critical due to the perishable nature of the products. Sales forecasting methods that would give highest degrees of accuracy are essential.

This study investigated current practices of forecasting sales in the FMCG manufacturing firms. The specific objectives of the study were to find out the most commonly used sales forecasting methods, to establish the reasons behind the currently practiced sales forecasting methods, to determine the challenges encountered in the process of generating a sales forecast and to determine the level of familiarity of existing sales forecasting method. It aimed at giving a comparison between the theoretically known sales forecasting methods and the practically used methods by the FMCG manufacturing firms.

The study used primary data collected from 48 FMCG firms that formed the population of interest. The required data was collected using a semi-structured questionnaire having both open-ended and close-ended questions. The mode of collection was personal interviews and “drop and pick later” method. The data was analyzed using descriptive statistics and presented using frequency tables and percentages.

The results of the study indicated that while all FMCG firms practiced sales forecasting, some methods were more popular than others. Time series methods were the most commonly

used sales forecasting methods, and in particular, the moving average method was indicated as the most common. Overall, the Delphi technique was the least used method. The findings also indicated that the easy interpretation of results was the main reason behind the choice of a sales forecast method while a sales forecast detailed in analysis was the least important reason while choosing a method to use. Certain challenges had an impact on the output of the sales forecast, where rapid and inconsistent environmental changes are the most seriously faced challenges in sales forecast development. There are many methods at the disposal of the forecaster, but the findings indicated that the respondents are more familiar with time series methods.

In view of the study's findings one conclusion was made, that there is a big correlation between the commonly used sales forecasting methods and those that the forecasters are familiar with. Time series methods are both the most commonly used and yet the highest in familiarity. On the basis of the findings, the study recommended that the managers charged with the task of sales forecasting in these firms have more knowledge in the field of forecasting than they are currently applying, and they should be given an opportunity to test the other methods that they are familiar with in view of improving the sales forecasting process. A further recommendation to the management of these firms is to consolidate the sales forecasting process within the sales and/or marketing department.

This study was only done for large FMCG manufacturing firms. Further studies can be done with special emphasis on the type of product manufactured to establish if specific methods of sales forecasting are used for particular category of consumer goods.

CHAPTER ONE

INTRODUCTION

1.1 Background

The role of the manufacturing sector in Kenya cannot be overemphasized. The contribution to poverty eradication and utilization of local resources is immense. The sector creates employment opportunities for many Kenyans and in the process earning sustainable revenue for the Government. Through the provision of an enabling environment, the Government of Kenya (GOK) has recognized the importance of this sector. The growth of the sector is a direct contribution to the growth of the Kenyan economy that has been on a decline since the early 1990's. The sector comprises of over 700 established enterprises employing over two hundred thousand people. It contributes an estimated 13% of the GDP, and it is only second to Agriculture (Kenya Economic Survey 2002).

Most manufacturing firms are moving from an era dominated by operations and production efficiencies to an era of explosive marketing innovations. An era in which radically improving the consumer experience and value provided, will take a prime position. One such innovation is predicting what the consumer demand will be in the future. In making conscious decisions under uncertainty, we all make some forecasts. We may not think we are forecasting, but our choices will be directed by our anticipation of results of our actions or omissions. Sales forecasting in a large manufacturing operation, has to be an automatic process which will deliver an effective response to a wide range of demand patterns, including fast, slow, lumpy, highly variable, spiky, new, obsolescent and seasonal items. The generation of starting values for the forecasts, the updating techniques and the design of an exception management suite all have to be specifically aligned to the objective of achieving a specified level of service at the minimum cost in stock and with minimum imposition on management time. The choice and

configuration of forecasting techniques which will enable this to be achieved is driven partly by judicious selection from textbooks or published research, and partly by practitioner experience in what is essentially an empirical subject.

Despite large sums of money being spent annually on marketing activities, the performance of sales varies greatly. When performance is poorer than expected, the impact thereafter is serious on budgets. Current practice of anticipating the expected outcome, is educated guesswork based on, amongst other things, previous activities. And yet, the raw data that is available to most sales oriented activities is a forecaster's dream. Accurate estimation of demand is critical to making decisions about how many and what kind of products to manufacture (Still et. al 1999). This has to start by understanding the key complex forces behind changes in demand, which may not always be a straight forward art. It is further compounded by the fact that consumer preferences are constantly changing. Mbau (2000) notes that consumers have become better educated, more inquisitive and demanding, while products have become increasingly complex and specialized. Therefore, developing a reliable sales forecast for the products may be the best solution.

In manufacturing firms, operations revolve around raw materials, work in progress and finished goods. All these variables are liquid assets that tie down a considerable amount of working capital (Yobesh 1991). How well they are managed may contribute to stock-outs or over-stocking. A balance must be struck between how much to order and how much to hold in order to minimize inventory costs. Whereas it may be possible to decide how much of raw materials, work in progress or finished goods in value quantities to hold, it may not be possible to decide with full certainty how much of the finished goods will be turned into sales at a given period of time. The only indication of how much sales are moving then, would be the level of depletion of the finished goods held (Muturi 1990)

Some studies done have helped to highlight problems faced due to poor or no forecasting. Mugo (1992) found out that certain homes for the needy do not forecast donations they expect to receive and have faced cash flow planning problems in subsequent periods. Lack of effective planning and hence the long queues at the health clinic at the University of Nairobi are caused by lack of a forecasting tool (Irayah, 1993). Chepkoit (1992) observes that the efficiency of the product distribution network is critical to meeting consumer demand. Before distributing the product to the retail outlets, the amount required in the respective markets to be served should be approximated. He continues to argue that a sales forecast must hence be done since it forms the building block for marketing and distribution planning. Various other studies have been conducted related to this field of sales forecasting. Green et al (1973) did a study looking at the methods of forecasting goods in a mail order company. The goods in question were ladies dresses. After identifying the forecasting method used by the company, the author then tested a particular time series method to solve the problem of returned goods using previous five months data. The comparison of actual sales and model results showed a high degree of accuracy.

Other studies have been done on how the forecasters combine different methods of forecasting to achieve the best results. Reeves G. R and Lawrence (1982) studied a combination of forecasting methods based on multiple objectives. Bunn (1975) also studied linear combination of forecasting while Carbone et al (1983) did a comparison of different time series methods, the value of technique expertise and judgmental adjustments as used in forecasting. In all these studies, a common observation was arrived that, there are various benefits associated by combining different methods of forecasting. The main determinant is the ultimate decision that is to be made.

1.2 Statement of the Problem

There are different methods and techniques used to forecast sales. These may range from un-informed guesses, to sophisticated statistical models. Virtually all functions of a business depend on a sales forecast for their planning. In the field of sales, it is of fundamental importance in planning and evaluating the personal selling effort. The sales managers thus should be familiar with the techniques used to develop the forecasts. Although marketing executives may not perform the actual statistical computations, they should be familiar with each technique's merits and limitations. For the FMCG category of goods, a sale on time is critical due to the perishable nature of the products. Sales forecasting methods that would give highest degrees of accuracy are essential.

In a previous study done by Yego (1995), it was clear that there are contrasting methods of forecasting used in manufacturing firms. The author concluded that most large manufacturing firms are more familiar and use subjective methods of forecasting. The study was general to all large manufacturing firms. However, it did not take into account the type of product manufactured and ownership of firm as factors affecting the forecasting methods. The author suggests further areas of research sighting category of firms as a distinction, thus, testing if there are variations in different methods used by firms depending on ownership or the product they manufacture. With the market environment having changed since the findings of this study, there is a need to find out if the same methods of forecasting are still being applied. This is with specific interest to category of consumer products.

Another study done by Mwangi (1983) focuses on statistical sales forecasting method as a method of inventory control in a service industry. The study aimed at solving a particular problem of stock reordering levels of guest soap at the Block Hotels in Kenya. A methodology

of forecasting sugar demand has been done by Chepkoit (1992), but was limited to the depot as the last consumption point. A recommendation is given for further study at the retail to estimate the demand.

In a FMCG environment, on time and in full availability of products is critical to achieving high level of consumer satisfaction. The satisfaction cannot be achieved without having a proper understating of the consumer preferences and patterns. Some studies have also been done on different subjects such as segmentation and influence on consumer choice in this FMCG sector. Yet, no study has been done focusing on the different sales forecasting methods used by FMCG manufacturing companies in Kenya. It is not known what unique methods these manufacturing companies use in order to remain competitive in the liberalized and competitive environment. Do they really know how important this piece of data is? One guide a manager might find useful, when choosing a sales forecasting method is what other companies have done. But what methods and techniques do FMCG manufacturing firms in Kenya use in order to determine the future sales accurately and within a “reasonable” degree of confidence? This study endeavors to undertake a research to determine this.

1.3 Objectives of the Study

This study intends to look at the process that FMCG manufacturing firms operating in Kenya go through in anticipating and managing the uncertainty by using effective sales forecasting techniques. In particular, the objectives are to:

1. Find out the most commonly used sales forecasting methods in FMCG manufacturing firms operating in Kenya.
2. Establish the reasons behind the currently practiced sales forecasting methods.
3. Determine the challenges encountered in the process of generating a sales forecast.

4. Determine the level of familiarity of existing sales forecasting methods.

LITERATURE REVIEW

1.4 Significance of the Study

This study is beneficial for a number of reasons:

1. To the FMCG manufacturing firms under the study, the research study will provide them with an insight of the various comparable sales forecasting methods used in the FMCG manufacturing sector. Certain firms may choose to review and adopt certain methods as discussed in this study. Competitive advantage may be gained by adding or changing a currently used method.
2. Any firm (non manufacturing or any other FMCG) willing to test a certain technique in sales forecasting, may choose from the methods under this study. The study will expose such firms to choosing a practical and tested method of sales forecasting.
3. Academically, this study is expected to contribute to the knowledge of sales forecasting in general. It would in particular give a comparison between the theoretically known sales forecasting methods and the practically used methods by the manufacturing firms. It is hoped that it will also be a stimulus for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at part of the literature available on sales forecasting methods and their importance in manufacturing firms. It also looks at criteria of choosing a method and why some methods fail. Reference is made to empirical evidence available about FMCG firms.

“He who lives by the crystal ball soon learns to eat ground glass” “If you have to forecast, forecast often” These were quotes from a publication by Edgar, (1977) - The three Rs of economic forecasting – irrational, irrelevant and irreverent. Perhaps a cautionary career note based on past experience and a useful survival tactic. Forecasting involves risk taking and decision making. Virtually in all areas of decision making, some form of forecast is either explicitly or implicitly used (Chambers et al 1974). If it is a formal forecast, the decision maker should know how the forecast was derived. Thus the input data used, the basic assumptions, and possible forecast error within which the forecast is considered accurate. If no forecast is provided to the decision maker, then a forecast has to be generated, or the decision maker will infer one in arriving at the decision. Since sales forecasting is so vital in decision making, it is critical that the sales manager have sufficient knowledge about forecasting techniques and methodology. This is a yard stick to assigning some degree of credibility to the forecast, besides questioning the inputs used to arrive at the final forecast.

The process by which sales managers arrive at decisions vary with their background and style. But certain basic elements are common to all decision making. The manager must take into account the knowledge of the existing situation to which the decision applies and of ways in which the situation can change and affect sales performance over time. It is hard to reduce the

margin of error to zero while making a decision, but the credibility of the decision depends on how low the error can be minimized to.

2.2 Fast Moving Consumer Goods

Consumers are the end users of a product and they buy a vast array of goods. These goods can be classified into three categories on the basis of the consumers shopping habits (Kotler, 1998); convenience, shopping, specialty and unsought goods. They can also be classified according to how fast the consumers pick them from the outlets, in which two categories have been identified; fast moving and slow moving. The fast moving consumer goods (FMCG) have the following characteristics (Hongo 2001): They have short shelf-life, have very minimal margins and have very high sales volumes. Due to the high volumes moved, the traders of FMCG realize profits faster than if they were dealing with other goods. Hongo (2001) continues to note that in Kenya, the manufacturing sector is mainly composed of FMCG firms. This is because of “comparably” little capital employed as opposed to industrial goods.

2.3 A Sales Forecast

A sales forecast is defined as an estimate of the value or unit sales for a specified future period under a proposed marketing plan or program. This may be for a specified item or for an entire line. It may also be for a market as a whole or for any portion of it (Still et. al.1999). It is one of the most important pieces of data used by management and lies at the heart of most companies' planning efforts. Sales forecasting is the process undergone for developing a sales forecast. In projecting future sales of a product, a number of factors must be taken into consideration. The basic one is to understand the key demand drivers. Different manufacturing firms will have different assumptions in which their sales forecast will be based on.

Kotler (1998) defines a company's sales forecast as the expected level of company sales based on a chosen marketing plan and an assumed marketing environment. Chambers et al (1974) observes that generating a forecast is a process. The process involves the formulation of the forecasting problem, the important factors in the system and their relationships. The way in which the forecast will aid in the decision making will then follow, with the timing and value of decision. The process ends with the evaluating the way the system changes, the most reasonable assumptions that can be made and the relevance of historical information that is available.

A sales forecast has also been defined as an estimate of sales in dollars or physical units, in future period under a particular marketing program and an assumed set of economic and other factors outside the unit for which the forecast is made, Still et al (1999). It may be for a single product, entire product line, manufacturing entire marketing area or a subdivision of it.

According to Mwangi (1983), sales forecasting differ slightly with prediction. Sales forecasting is the projection of the past into the future, while prediction is the anticipation of changes, and new factors affecting demand. It is primarily based on how one perceives the future events. The events here may be within our control such as sales promotions, or may be without our control such as strikes or competitor activities.

2.4 The Importance of Sales Forecasting

Sales forecasting exercise is usually carried out in order to provide an aid to decision-making and in planning the future. Typically all such exercises work on the premise that if we can predict what the future will be like we can modify our behaviour now. This means that we will be in a better position, than we otherwise would have been, when the future arrives. In the manufacturing firms, sales forecasts touch nearly every aspect of operations. The range of

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operations spans from warehouse logistics, merchandise purchasing, allocation and replenishment and store staffing to expansion planning and expense control. At each different level of management, a sales forecast is important in its own way. At the top, the management will use a sales forecast to allocate resources among the various functions, Finance will use it to project cash flows, to decide capital appropriations as well as to establish operating budgets. The production manager needs it to decide how to cope with future manufacturing requirements, determine future capacity requirements, control inventory and develop a response to market trends. For the human resources, it is used for personnel planning while in procurement it is used to plan the firms overall material requirements. Marketing and sales programs are planned within the sales forecast as well, besides being of fundamental importance in planning and evaluating the personal selling effort (Still et. al 1999).

Leoutief (1964) observes that no matter how well a company schedules its internal operations, its plans collapse if its sales forecasts are seriously in error. One of the key aspects of decision making is being able to predict the circumstances surrounding individual decisions and situations. Forecasts that can be used as the basis for decision making are the most crucial because the general management function is central to successful operation of the firm. Most forecasting required for decision making is handled judgementally in an intuitive fashion, often without explicitly separating the task of forecasting from that of decision making (Chepkoit 1992). This is true even in large manufacturing firms despite its value both in small and large firms where it is straight forward and unequivocal.

2.5 Methods and Techniques of Sales Forecasting

The demand for a product is generated by a complex interaction of many factors. If it were possible to understand the effect of these factors and how they interrelate, the job of sales forecasting would be relatively straight forward. All that would be done is to develop a

mathematical model that could give a very accurate estimate of the future demand. Since it is not possible, and that factors that influence sales are constantly changing, the sales executive must consider some kind of sales forecast in every decision made. Prediction is very difficult, especially if it is about the future. Ideally, organizations which can afford to do so will usually assign crucial forecast responsibilities to those departments and/or individuals that are best qualified and have the necessary resources at hand to make such forecast estimations under complicated demand patterns. Clearly, a firm with a large ongoing operation and a technical staff comprised of statisticians, for example, management scientists and computer analysts is in a much better position to select and make proper use of sophisticated forecast techniques than is a company with limited resources. Notably, the bigger firm, through its larger resources, has a competitive edge over an unwary smaller firm and can be expected to be very diligent and detailed in estimating forecast (although between the two, it is usually the smaller firm which can least afford miscalculations in new forecast levels).

After the forecasting problem has been properly formulated, the forecaster will be in a position to choose the technique or a combination of them that will best fit the needs. To deal with varying sales forecasting problems, there are many techniques that have evolved in the current business environment. Each technique has its most suitable use in business firms. The discussion that follows is an outline of some effective forecasting approaches especially for short to intermediate term analysis and forecasting. No attempt is made here to give an exhaustive list of the techniques. For simplicity, the sales forecasting techniques have been grouped into three basic categories (Chambers et al 1974), namely qualitative techniques, time series analysis and projection and finally causal methods.

2.5.1 Qualitative Techniques

These are used primarily when data are scarce, either because there is no relevant history (for example a new product) or good information is virtually nonexistent (Chamber et al 1974). It is common where there is no formal mathematical model, often because the data available is not thought to be representative of the future (long-term forecasting). As the name implies, these techniques rely primarily on qualitative or judgemental information. Kotler (1998) classifies qualitative methods as what people say, which means surveying the opinions of the parties involved in driving sales performance. However, qualitative information provides a poor basis for comparison and can be interpreted differently. Therefore, it is obviously better if the qualitative information can be translated in some way to a quantitative base. The objective of the techniques is to bring together in a logical, unbiased, and systematic way all information and judgements that relate to the factors being evaluated (Mwangi 1983). It uses qualitative data such as expert's opinions (group discussions, sales force predictions) and information about special events.

Qualitative techniques are frequently used both in new technology areas and, to a large extent, in technological forecasting where development of a product idea may require several "inventions," so that research and development efforts and likelihood of success are difficult to estimate. It is also used where market acceptance and penetration rates are highly uncertain.

2.5.2 Time Series Analysis and Projection

Based on the premise that past patterns will continue, this technique focuses on the changes in patterns and thus relies entirely on historical data. It is based on what people have done, and thus involves analysing records of past buying behaviour and using them to project into the future (Kotler 1998). These are statistical techniques that can be used when several years' data

for a product or product line are available and when relationships and trends are both clear and relatively stable.

One of the basic principles of statistical sales forecasting is that the forecaster should use the data on past performance to get a gauge of the current sales rate, and of how fast this rate is increasing or decreasing. The current rate and changes in the rate – “acceleration” or “deceleration”- constitute the basis of forecasting. Once these are known, various mathematical techniques can be used to develop projections from them (Chambers et al 2000). However, the sophistication of these analyses can vary widely. On one hand, the forecaster might simply forecast next year’s sales as a replica of the current year’s sales. This may be true for a mature business with little growth, but for a growing business, the same percentage growth could be applied. On the other hand, the sales forecaster might attempt to break the historical sales into basic components that influence them. This is by isolating portions due to trend, cyclical, seasonal and irregular influences. Each could be forecasted separately and then combined to produce an aggregate forecast (Churchil et al 2000).

2.5.2 Choosing a Sales Forecasting Method

It is usually difficult to make projections from raw data. This is because the rates and trends are not immediately obvious; they may be mixed up with seasonal variations, for example, distorted by such factors as the effects of an ambitious sales promotion campaign or some random event. Thus, the projection of raw data and their use in an unadjusted form to establish current rates and trends is perhaps the major source of error in forecasting.

2.5.3 Causal Methods

The causal methods use highly refined and specific information about relationships between system elements. It takes the past as the starting point and then incorporates variables. Whenever historical data is available, and explicit analysis can be done to expose the

relationship that exists between the factors behind changes in demand, the forecaster will often construct causal models. It is the most sophisticated type of forecasting tool, which uses mathematical models to express relevant causal relationships between demand variables. It also incorporates predictions of related events such as competitive activities and promotions.

If certain kinds of data are lacking, it may be necessary to make assumptions about some of the relationships and then track the results to assess the validity of the assumptions. Some forecasters will go ahead and attempt to quantify the assumptions used in order to support the sales forecast developed thereof. The causal model used in such a case will continually be revised as more knowledge about the system becomes available.

The model is ideal for evaluating the implications of various tactics and strategies as implemented by the sales force. In essence, the ultimate objective of a sales forecasting system under a causal model is to develop a comprehensive model of the system, which explains all of the system parameters and includes their interactions.

2.6 Choosing a Sales Forecasting Method

There are different ways that business firms use to develop a process of sales forecasting. The idea behind the process chosen is mainly influenced by the various factors behind the demand of a product. Managers applying forecasting in decision making must know the importance of selecting the appropriate forecasting technique for the specific situation. Different authors have highlighted how businesses classify their forecasts and factors behind choosing a certain method of sales forecasting.

Mwangi (1983) points out that the factors that influence demand may be grouped into two broad categories. The first one, is a set of factors that influence demand in the past and continue to do so in the future. In such a case, where such factors are dominant in determining

future sales of a product, the process of forecasting is chosen from routine methods. The second category consists of factors that were non-existent in the past but are envisaged to influence demand in the future. In such cases, the selection of the method of forecasting becomes complicated and new methods have to be developed.

Others have classified them according to the planning horizons. In an operations management article written by Hayes et al (1998), a sales forecast may be long term or short term. A long term sales forecast is used in the strategic plan, for planning the broad focus of a company. Long term planning is hazardous as the forecast is often based on tenuous data and the decisions are often crucial. On the other hand, short term sales forecast is of period of three to six months. It is of interest to the short term planning such as production people who must plan for the manufacturing system. Depending on what period the forecast covers, a method is then chosen.

Classifying forecasting problems is a combination of the timescale involved in the forecast that is, how far forward into the future we are trying to forecast and associated business decisions to be made. Short, medium and long-term are the usual categories but the actual meaning of each will vary according to the situation that is being studied, for example in forecasting energy demand in order to construct power stations 5-10 years would be short-term and 50 years would be long-term, whilst in forecasting consumer demand in many business situations up to 6 months would be short-term and over a couple of years long-term. The table below shows the timescale associated with different business decisions.

<u>Timescale</u>	<u>Type of Decision</u>	<u>Example</u>
Short-term Up to 3-6 months	Operating	Inventory control, Production planning, Distribution
Medium-term 3-6 months - 2 years	Tactical	Leasing of plant and equipment Employment changes

Long-term
Above 2 years

Strategic

Research and development
Acquisitions and mergers
Product changes

The basic reason for the above classification is that different forecasting methods apply in each situation, for example a forecasting method that is appropriate for forecasting sales next month (a short-term forecast) would probably be an inappropriate method for forecasting sales in five years time (a long-term forecast). In particular note here, the use of numbers (data) to which quantitative techniques are applied typically varies from very high for short-term forecasting to very low for long-term forecasting when we are dealing with business situations.

Sales depend on three main factors, which must be recognised before attempts to develop a sales forecast (Laughlin 1999). In this case the factors are decisions the company makes, competitor activities and environmental factors. Once we identify the extent of influence of these factors, a method of forecasting is then chosen. The best method suggested here is running a regression with sales as the dependent variable and these factors as the independent variables. The regression allows us to forecast sales with the assumption that we know what the values of these independent variables will be in the future. However, due to the uncertainty of the independent variable, it is advisable to conduct sensitivity analysis and estimate a range of sales forecasts under different scenarios. Thus, have three sets of forecast namely optimistic, best estimate (realistic) and pessimistic

Chambers et al (1974) states that choosing the method to use for sales forecast will depend on the stage of the product in the product life cycle. Normally, there are five stages in the life cycle of a successful product. These stages are product development testing and introduction, rapid growth, steady state and phasing out. The relevant factors and their interactions will usually be evolutionary over the product life cycle. In addition, the information and the level of accuracy required for obtaining the forecasts will change throughout the various stages. So the

techniques used for deriving the desired outputs will also differ analogously. Further to this, different products may require different kinds of forecasting techniques for the same stage of the product of life cycle.

2.7.2 Market Based Sales Forecast

Chepkoit (1992) notes that even though each situation is different and each technique has different strengths and weaknesses, it is very important to identify the general characteristics of forecasting situations and to contrast these with general characteristics of available forecasting methods. These two sets of characteristics can be used as a basic framework for matching specific needs with specific approaches.

2.7 Sales Forecasting for New Business

When a new business starts, there is a tendency to say "why bother with a sales forecast?" After all, it's only guesswork. Even some well established businesses do not forecast sales and they may be missing out on a vital part of business planning since it has been shown that businesses with a written sales forecast are more likely to achieve it than those without. Without a sales forecast, how do we know what is needed to be done? Without a sales forecast the target is zero! Without a sales forecast you cannot build a cash flow forecast and cash is king! There are three basic methods of forecasting sales for new start businesses (Stekler, 1987). A sales forecast is a realistic balance between all the following three methods and should be something which one feels comfortable with and feels is achievable.

2.7.1 Value Based Sales Forecast

This is calculated by dividing the estimated annual overheads by the Gross Profit Margin (GRM) as a percentage - this will then indicate what the 'breakeven' sales figure is for a business. For most types of business there is a recognised GPM. For example, in the news

agency business, the figure is approximately 17 percent. The key to business success is when the gross profit covers the overheads and leaves a little net profit.

2.7.2 Market Based Sales Forecast

This is a sales forecast based on the results of a market research that has been carried out. For example, a restaurant has opened and the customer profile has been identified. Some exploration is done by posing questions to the customers. Such questions would include how often they eat out and on average how much they spend on a meal. From this, certain facts can be established, including the number of clients who fit the customer profile, the number of customers who live in that area and the possible frequency of purchase. From this, one can estimate the total number of sales per week / month / year for the business. This figure must be safely above the value based sales forecast (otherwise one cannot sell as much as they have to)

2.7.3 Resource Based Sales Forecast

This is based on the resource limitations of the business to provide the service or product. Examples of this type of limitation could be: In the manufacturing sector where the production capacity is limited by machinery and/or staff. If one could produce a certain amount work in 5 days per week but are only able to work 4 days at what they are paid to do. If cash flow is such that one is unable to stock sufficiently for potential turnover. If, as in the example above, one need to serve 50 meals per sitting but only have 20 places at table. In order to be financially viable the resource based sales forecast must, again, be greater than the value based sales forecast. In other words one must be able to produce more than they have to sell and the market research should show that one can sell as much, or more, than they have to. If the resource based forecast is lower than the market based forecast it means that the demand is not being matched by the supply. If the market based forecast is lower than the resource based forecast it means that the supply will be able to easily keep up with demand.

2.8 Monitoring the Sales Forecasting Methods

The sales forecasting process should not end once the output is obtained. It is a continuous process and it's important that the forecaster always know whether the methods used are performing adequately (Yego 1995). Controls should be identified that should suit the process in use and constantly checked to evaluate their response to change in data patterns. Some commonly used methods for this purpose include mean absolute deviation, mean square error, tracking signal and control charts (Yego 1995). These methods have upper and lower limits which define the range of acceptability of errors. Any sales forecast values falling beyond these limits are outliers and indicate existence of errors. This then calls for an evaluation of the forecasting process and corrective measures taken. When early corrective measures are taken, the stability and accuracy of the forecast is upheld, aiding in minimal errors while making decisions.

2.9 Why Forecasting Systems Fail

Majority of plans fail because of lack of implementation. This could be seen more evidently in the failure of impressive forecasts by organisations. For this reason managers ought to take care in putting forecasts plans into action. The main reasons why these forecasts fail are (Chepkoit C.K, 1992) as follows:-

1. Failure to recognize that the forecasting model is an element of the forecasting system and not the system.
2. Non-involvement of the right persons in implementation of forecasting during the forecasting process. Broad cross section of people in the forecasting system could see more information brought to use.
3. Tendency to take forecasts as perfect (estimates are bound to have derivation from the actual results). This turns soar to the organization when such forecasts are not attained.

4. The methodology of making the forecasts are in some cases inappropriate and this leads to wrong forecasts that are misleading.
5. Failure to forecasts the right things. For instance forecasting raw materials usage rather than finished goods demand.
6. Lack of follow up to compare forecasts and the actual results. This would help in assessing the accuracy of the forecast model. Due to this an inappropriate model may continue to be used and never be modified.

2.10 Summary

Sales forecasting involves more than just the skills of utilizing the existing mathematical and statistical data to project the future. An understanding of the market dynamics and use of market research where necessary is vital to a credible sales forecast. The forecaster also needs to incorporate special information such as potential competitive activities, any anticipated changes in economic factors and effects of other events on timing and sales. Any sales forecaster must understand that despite the availability of many techniques, forecasting is still an art rather than a science. We must carefully determine what is required of the forecast and examine each of the techniques to determine which is most applicable for the particular forecast being prepared. This can only effectively be done through proper formulation of the forecasting problem, since each technique has strengths and weaknesses. The underlying assumptions must also be evaluated for each specific situation. The accuracy of the forecasts will ultimately depend on the skill of the forecaster in using all the resources available.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

The objectives of this study were achieved through conducting a survey on the population of interest. The survey design was chosen due to the exploratory nature of the study. It ensured that the variables used by the FMCG manufacturing firms in developing a sales forecast are identified. The design also allowed generalisation and hence it became representative. It involved gathering, processing and interpreting data from the FMCG manufacturing firms.

3.2 Population

The population of interest comprised of large FMCG manufacturing firms operating in Kenya. In determining the size of a firm, several methods have been used. Mentzer and Cox (1984) did a survey of forecasting practices in US firms, where sales turnover was used to determine the size. Another measure used is the size of capital employed. Yet the most commonly used, is the number of employees. A combination of any or all of these three measures may be used to determine the size of the firm, as used by Aosa (1992). This study used the number of employees to determine the size of the firm, due to its ease of availability. Where the number of employees is used to define the size, firms with at least 50 employees are considered large (Yego, 1995). A list obtained from the Central Bureau of Statistics (2001) indicated that there are 400 such firms in Kenya. The study was however confined to the FMCG firms only. According to the Kenya Association of Manufacturers (KAM) Directory (2001), there were 48 FMCG firms operating in Kenya (Appendix 3)

The complete list of manufacturing firms was obtained from the directory of KAM. From the list of 48 FMCG firms, 22 were multinationals with parent companies outside Kenya, while the

rest 26 had full local ownership. After considering the field of study, the low level of response in previous studies, and given that the population size was small (48 firms), a census study was then conducted.

3.3 Respondents

The targeted respondents were managers in sales and/or marketing or their equivalent having the responsibility of forecasting sales. These people were expected to have knowledge about the sales and marketing activities in their firms, as well as being empowered to make important business decisions. The study also aimed at finding out if there are other departments that are responsible for sales forecasting in these firms. Such departments were like production, administration, procurement or human resource.

3.4 Data Collection

Primary data for the study was collected by means of a questionnaire. The questionnaire was semi-structured having both open-ended and close-ended questions. The researcher administered the questionnaire personally, which was meant to generate as much information as possible from the respondents. However, due to time and budgetary constraints, “drop and pick later” method of administering the questionnaire was also used. Telephone follow up was used for any clarifications in the case of “drop and pick later” method. The questions had been developed from a thorough review of the objectives to be achieved. The 5-point likert scale was used, with 5 taken to be the highest level and 1 as the lowest level. This scale was used as it provided for expression of intensity of feeling.

The questionnaire was divided into two sections.

1. **Part A** was designed to collect general information about the manufacturing firms.
2. **Part B** had questions aimed at collecting specific data on sales forecasting as used by manufacturing firms in Kenya.

3.5 Data Analysis

Data was first edited in order to check for completeness and consistency of responses given. Descriptive data was analyzed by means of descriptive statistics. This included tables, proportions and mean scores. The mean scores were calculated from the responses, which were rated, on a 5-point likert scale.

The first part of the questionnaire contained general questions. In the subsequent parts that dealt with sales forecasting process, the population of 48 respondents was analysed. Therefore, N was used to universally refer to the respondents of the total population.

Table 4.1: Position of respondents

Position of respondent	Number	Percent
Sales	14	29
Marketing	8	17
Production	7	14
Human Resource	5	10
Administration	2	4
Procurement	2	4
Total	48	100

Source: Primary data

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the analysis of the data collected through the completed questionnaires. The additional findings of the study are discussed. Data is summarized and presented for analysis in the form of tables and proportions.

4.2 Overview of the Data Collected and Analysed

This section presents a general overview of the 48 firms targeted for the study. Out of these 48 firms, 3 had closed down their operations at the time of the study. So, 45 questionnaires were distributed, 38 were returned with a favourable response. This represented a response rate of 84 percent. However, 2 of these were incomplete and could not be used for analysis since they could have distorted the outcome and cause biasness. It is worth noting that the incomplete questionnaires had been administered through the “drop and pick later” method, which is known to have a low rate of response. The data here is therefore analysed using 36 responses rather than 38. Nevertheless, all the 38 firms indicated that they do sales forecasting.

The respondents were asked to indicate their positions in the firm, and the targeted respondents were managers in sales and/or marketing or their equivalent, with the responsibility of forecasting sales. The findings are as summarised in Table 4.1 below.

Table 4.1: Position of respondents

Position of respondent	Number	Percent
Sales	14	39
Marketing	8	22
Production	5	14
Human Resource	5	14
Administration	2	6
Procurement	2	6
Total	36	100

Source: Primary data

4.3 The Sales Forecasting Methods Used in FMCG Manufacturing Firms

The respondents were asked to indicate the extent of usage of various sales forecasting methods. The categories to choose from were broadly divided into three; qualitative, time series and causal methods. Although 100 percent of all the firms indicated that they undertake a sales forecast, it was clear that some of the respondents were not quite aware that what they use is a known and documented method. Most of such firms had their respondents coming from other functions other than sales or marketing and they constituted 39 percent of the respondents. Efforts were made to explain to such respondents the definition of the methods used in the questionnaire. Table 4.3 below shows the summary of the findings.

Table 4.3: Extent of Usage of Sales Forecasting Methods

Forecasting Method	No extent		Small extent		Moderate extent		Great extent		Very great extent	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Qualitative										
Delphi technique	18	50	11	31	5	14	2	6	0	0
Panel consensus	5	14	8	22	13	36	6	17	4	11
Market research	8	22	2	6	8	22	13	36	5	14
Jury of Executive opinion	6	17	13	36	5	14	11	31	1	2
Time Series										
Moving average	4	11	6	17	4	11	8	22	14	39
Exponential smoothing	9	25	13	36	10	28	4	11	0	0
Learning-Experience curve	9	25	0	0	11	31	9	25	7	19
Trend line projections	7	19	2	6	6	17	16	44	5	14
Causal Methods										
Regression analysis	14	39	8	22	6	17	4	11	4	11
Intension to buy and anticipation survey	10	28	3	8	10	28	9	25	4	11
Econometric model	15	42	9	25	7	20	4	11	1	2
Product life cycle analysis	8	22	0	0	10	28	12	33	6	17

Source: Primary data

The results showed that some methods of sales forecasting are more widely used than others. It also emerged that some firms use a combination of multiple methods. Using the cumulative

frequencies of those who used different methods from a great extent to a very great extent, time series methods were the most commonly used sales forecasting methods, with a total of 44 percent of all firms using them. Causal methods were second at 31 percent followed closely by qualitative methods as the least used with 29 percent of the firms.

Among all the sales forecasting methods included in the study, moving average method was indicated as the most commonly used with 39 percent of the firms using it. This may be the case due to the fact that 94 percent of the firms have existed for more than 5 years. This provides some historical information for which the moving average method heavily relies on. The learning-experience curve (19 percent) came out second followed by product life cycle analysis (17 percent). Overall, the Delphi technique is the least used method with 50 percent of the firms not using it at all, followed by econometric model and the regression analysis in that order.

These findings are consistent with empirical evidence where qualitative methods are less used than the quantitative ones (Yego, 1995). But the order of the popularity in usage of the qualitative methods negates the empirical findings. Whereas the findings of the study show that market research is the most commonly used method, most empirical findings show that the jury of executive's opinion is the most common. Among the time series methods, moving average is the most widely used, while exponential smoothing had the least usage in this grouping, with only 11 percent of the firms using the method to a great extent and none uses it to very great extent. This is in line with empirical evidence. The findings on the usage of causal methods almost mirror the empirical evidence except for the regression analysis. Empirical evidence indicates that regression analysis is a widely used method but not from this study; 39 percent of the firms do not use it at all.

4.4 The Reasons Behind the Usage of Various Sales Forecasting Methods

Different firms have varied reasons for use of a certain sales forecasting methods. There are many reasons why a firm should choose a certain method and not the other. Experts in the field of sales forecasting have discussed factors that need to be considered. But at the operational level, the method chosen need not satisfy all the factors, only the critical ones depending on the objectives of the expected output. For firms in this study, the Table 4.4 below shows the research findings on the reasons behind the use of certain methods.

Table 4.4 Reasons for the Usage of Various Sales Forecasting Methods

Reasons	Frequency	Percent
Less costly to use	27	75
Accurate/reliable	22	61
Easy interpretation of results	34	94
Detailed in analysis	9	25
Flexible to use	27	75

Source: Primary data

The findings indicated that the easy interpretation of results is the main reason behind the choice of a sales forecast method. In these results, 94 percent of the respondents used the method due to the ease in interpretation. Although many researchers have not ranked the various reasons in order of importance, in certain previous studies the cost of a particular method has always ranked high. In this study, the cost was ranked second; at 75 percent. Equally important is the flexibility of the method, also with 75 percent of the respondents. A sales forecast detailed in analysis, scored the lowest at 25 percent.

4.5 The Challenges Encountered When Developing a Sales Forecast

In this section, the respondents were asked to indicate the challenges they encountered during the process of developing a sales forecast. These are challenges that have an impact on the

output of the sales forecast. The challenges mentioned by the firms under this study are shown in the Table 4.5 below.

Table 4.5: Challenges Encountered When Developing a Sales Forecast

Challenges	Frequency	Percent
Lack of reliable/relevant data	30	83
Lack of organisational support	8	22
Poor forecasting skills	17	47
Rapid and inconsistent environmental changes	33	92
No forecasting consultancy services	13	36
Poor communication between parties involved	18	50

Source: Primary data

The information presented in table 4.5 indicates that rapid and inconsistent environmental changes are the most seriously faced problem in sales forecast development with 92 percent of the respondents indicating so. Lack of reliable or relevant data was second at 83 percent followed by breakdown in communication between the parties involved (50 percent). Close to half (47 percent) of the respondents cited poor forecasting skills as a challenge. Lack of organisational support is not a serious problem in sales forecasting; 22 percent mentioned it as a challenge

As Yego (1995) found out in his study, changes in the forecasting environment are the lead challenge in sales forecasting. The findings in this study were consistent with these findings.

4.6 Familiarity with Various Sales Forecasting Methods

In many firms where sales forecasts are the drivers of business planning, the sales forecaster must be knowledgeable in the field of forecasting. There are many methods at the disposal of the forecaster, but the selection of which ones to use must be done carefully. This may be determined by different factors. One of them is the familiarity of the sales forecaster with the various methods available. It is expected that these managers have formal knowledge of sales

forecasting methods although they may not necessarily be applicable to their current jobs. It was prudent therefore to find out the level of familiarity of various forecasting methods among the respondents. Table 4.6 below presents the findings.

Table 4.6: Familiarity with Sales Forecasting Methods

Forecasting Method	No extent		Small extent		Moderate extent		Great extent		Very great extent	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Qualitative										
Delphi Technique	15	42	11	31	4	11	6	17	0	0
Panel Consensus	4	11	16	44	6	17	6	17	4	11
Market Research	4	11	3	8	8	22	4	11	17	47
Jury of Executive opinion	9	25	2	6	17	47	4	11	4	11
Time Series										
Moving Average	3	8	9	25	9	25	3	8	12	33
Exponential Smoothing	5	14	17	47	9	25	5	14	0	0
Learning-Experience curve	8	22	0	0	10	28	12	33	6	17
Trend Line Projections	2	6	4	11	5	14	18	50	7	19
Causal Methods										
Regression Analysis	12	33	8	22	8	22	4	11	4	11
Intension to buy and anticipation survey	6	17	1	3	10	28	7	19	12	33
Econometric Model	11	31	10	28	7	19	5	14	3	8
Product Life cycle analysis	1	3	6	17	3	8	10	28	16	44

Source: Primary data

The findings indicate that the respondents are more familiar with time series methods, with 44 percent being familiar with them from a great extent to a very great extent. This compares well with the usage where 45 percent of them use these methods to a great extent. Causal methods are a close second at 42 percent. The sales forecasters in these firms are least familiar with the qualitative methods where only 29 percent of the respondents indicated familiarity from a great extent to a very great extent.

Within the three categories, certain methods are more familiar to the respondents than others. Among the qualitative methods, market research was the most familiar method of sales forecast (47 percent). It also emerged as the overall most familiar method amongst all the

individual ones tested. Moving average within the time series was the highest in familiarity; 33 percent. However, it was third overall, tying positions with intension to buy and anticipation survey. Among the Causal set of methods, product life cycle analysis was the most familiar method at 44 percent. This method was the second overall among all the individual methods.

From these results, it appears sales forecasters in the FMCG firms are more familiar with the structured methods of sales forecasting than the un-structured methods. This may be attributed to the nature of the product, which in this case has a very short shelf life and perishable. It further explains that the most familiar methods are those backed by quantitative data. The Delphi technique therefore becomes the least familiar method to the sales forecasters.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The discussion is based on the FMCG manufacturing firms that practice sales forecasting. From the research findings, all the firms under this study practice sales forecasting. The study aimed to achieve four objectives. The first objective was to find out what sales forecasting methods are used in the FMCG manufacturing firms. The second objective was to find out the reasons behind the currently practiced sales forecasting methods. The third one was to find out the challenges encountered in the process of generating a sales forecast. And the last objective was to find out the level of familiarity of existing sales forecasting methods among those charged with responsibility of sales forecasting. As far as these four objectives are concerned, the study has been able to establish the sales forecasting practices in the FMCG manufacturing firms in Kenya.

On the most commonly used sales forecasting methods, the study revealed that time series methods have the widest usage amongst these firms. Time series methods are quantitative and rely heavily on historical data. Most of the firms under the study have operated long enough to provide a historical base for future forecast. Specifically, the moving average method was the most commonly used method. The other individual methods that followed on heavy usage were the learning-experience curve, product life cycle analysis, trend line projections and market research in that order. Overall, the Delphi technique is the least used method, followed by econometric model and the regression analysis

Regarding the reasons behind the currently practiced sales forecasting methods, easy interpretation of results is the main reason behind the choice of a sales forecast method. Other reasons in order of importance are the cost of a particular method, the flexibility of the method,

and lastly accuracy and reliability of the forecast. A sales forecast detailed in analysis is least important in the choice of the methods used.

In the case of the challenges encountered in the process of generating a sales forecast, rapid and inconsistent environmental changes are the most seriously faced problem in sales forecast development. Besides being consistent with the literature, Yego's (1995) findings were similar with rapid and inconsistent environmental changes topping the list of challenges. Others in order of seriousness from the findings are lack of reliable or relevant data, breakdown in communication between the parties involved, poor forecasting skills, and non-existence of sales forecasting consultancies. Lack of organisational support was the least considered challenge encountered.

The results indicated that from all the methods tested for level of familiarity, market research was the most familiar method of sales forecasting among those charged with responsibility of sales forecasting. Others are product life cycle analysis, moving average, intention to buy and anticipation survey, while trend line projection was the least familiar method.

5.2 Conclusions

There was a total population of 45 firms targeted for this study, with 38 of them responding favourably. From all the findings, certain conclusions can be made and generalised for all the FMCG manufacturing firms operating in Kenya. However, it is important to note that the conclusions here are based on the 36 complete responses, which form the majority of the responses.

In general, the first conclusion from this study that can be made is that all FMCG manufacturing firms practice sales forecasting. In the manufacturing firms, sales forecasts touch nearly every aspect of the firm's operations. These firms have therefore recognised that

no matter how well they schedule their internal operations, the plans will not be achieved if they are not guided by well thought out sales forecasts.

Looking at the characteristics of respondents, the study revealed that 61 percent of the managers charged with the responsibility of sales forecasting, came from the departments of Sales and Marketing. With the manufacturing firms evolving from supply oriented to demand oriented, the role of sales forecasting has gradually changed from production function to sales and marketing function. This was largely expected to have been the case with the FMCG firms where the consumer demand is the main driver of sales. Other departments such human resource and administration are still involved in sales forecasting. The second conclusion then follows that some FMCG firms have still not embraced the focus to consumer demand as far as sales forecasting is concerned. A further look at the respondents, only 2 firms (6 percent) have operated for less than 5 years. This explains why the time series methods of sales forecasting are more popular, since the methods depend heavily on historical trends.

Another conclusion that can be drawn from the findings is that the research results are in line with empirical evidence sighted in the literature review. In this case, due to the availability of historical information and repetitive sales trends, the time series methods, within the category of quantitative methods of forecasting, are the best suited in a FMCG environment. The research findings confirmed this. But this is contrary to the findings by Yego (1995) that quantitative methods of forecasting are not widely used in large manufacturing firms operating in Kenya. The situation has since changed and specifically for the FMCG business environment. This gradual change is also expected in the non FMCG manufacturing firms with many of them embracing the quantitative methods; hence it can be generalized for all the manufacturing firms in operation now. Further to the empirical evidence, the study confirmed that rapid and inconsistent environmental changes are still the biggest challenge in the sales

forecasting process. Unlike in previous studies where organisational support was revealed as a stumbling block to a reliable sales forecast, it can now be concluded that more top management staff are offering the much needed support. Lack of this support was the least problem faced by the sales forecasters in this study.

Lastly, there is a big correlation between the commonly used sales forecasting methods and those that the forecasters are familiar with. Time series methods are both the most commonly used and yet the highest in familiarity. This leads to the conclusion that these firms have the right managers for these jobs. These are managers that understand the time series methods very well and apply them more often in their work environment. Furthermore, since the learning-experience curve is one of the most popular time series method used, these managers could have learned how to use these methods on the job. The methods then become the main ones that they are familiar with, since they apply them on routine basis. A similar correlation exists in the qualitative methods. However, in the causal methods, there is some significant difference where those familiar with the methods are more than those who actually practice them. This may be an indicator that the operating environment is still not conducive for the application of such complex models, which require a lot of stability. The existence of rapid and inconsistent environmental changes may be the cause of this instability. The nature of the products manufactured in these firms may also be a reason for the low level of usage of these methods. Causal methods are the most sophisticated type of forecasting tools, which uses mathematical models to express relevant causal relationships between demand variables. It uses specific information to establish the relationships that exist between demand drivers. This points out to the fact that the sales forecasters have more skills on causal methods of sales forecasting than they are currently applying.

5.3 Recommendations

The study has been able to establish the sales forecasting practices in FMCG manufacturing firms operating in Kenya. From the findings, some important recommendations can be made based on the 36 firms whose data was analyzed. These recommendations are meant to improve the process of forecasting both in academic circles and in practice.

One such recommendation is to the firms under this study and others that would like to improve their sales forecasting processes. The managers charged with the task of sales forecasting in these firms have more knowledge in the field of forecasting than they are currently applying. They should be given an opportunity to test the other methods that they are familiar with in view of improving the sales forecasting process. On the other hand, these managers from different firms should have forums where they can meet and share experiences. This will help in finding out what others have done as well as discovering what other methods exists in the practice. And to the management of these firms, it is clear that the organizational support given to the sales forecasters is well appreciated. It is no longer a challenge as was previously indicated. This should ultimately continue since reliable forecasting is critical to the decisions making process. A further recommendation to the management is to consolidate the sales forecasting process within the sales and/or marketing department. From the research findings, some of the managers doing sales forecasting come from other departments such as human resource and not sales and/or marketing. It is important that each function of the organization concentrates on the core business. That way, the forecast output will be in harmony with the consumer demands and it shall be driven by those who understand the key complex forces behind changes in demand, which may not always be a straight forward art.

The second recommendation is to the management science departments in the institutions of higher learning. One of the findings in this study is the confirmation that rapid and inconsistent

environmental changes continue to be a problem to the forecasting process. It is further compounded by the fact that consumer preferences are constantly changing. This is a situation that has been there for long and it is time that these institutions prepared their students more on how to deal with these conditions once they get into the job market. One way to deal with the challenge is more emphasis on the application of causal methods of sales forecasting. These methods take past trends as a starting point and establish the existing relationships. They then incorporate variables that may affect patterns in the future. In order to also educate and inform those already on these jobs of sales forecasting, these departments should also create links into the manufacturing firms where students could carry out research projects aimed at improving the process through sharing of results with the firms.

A recommendation to those with the duty of sales forecasting in these firms; it is upon them to acquaint themselves with what methods are available for forecasting. One finding from this study was that some sales forecasters were not even aware that the methods they use are recognised or exist in empirical evidence. They need to understand the situations in which different methods are applicable.

5.4 Limitations of the Study

The findings of this study can only be used in view of certain limitations. One limitation is the scope of coverage of the population. The study was conducted on large FMCG manufacturing firms and limited to the ones listed in the KAM directory 2001. Other small firms may be in existence and practicing different methods of sales forecasting.

Secondly, there was a limitation in getting personal interviews with all the respondents. Some respondents preferred the “drop and pick later” method of administering the questionnaire. As the researcher found out, many respondents may not have clearly understood the questions which led to biased answers. Furthermore, 40% of the respondents were from other

departments other than sales and/or marketing, who could have responded on methods that they were not familiar with to avoid portraying ignorance. Those who granted the researcher an interview had the chance of clarifying any unclear issues hence giving more precise answers.

Another limitation was the credibility of the answers given. No secondary data or other company records were available to cross check the information provided. It was difficult then to single out any dishonest or biased answers. This may have affected the quality of the research results.

5.5 Suggestions for Further Research

This study mainly dwelt on sales forecasting methods that are used in large FMCG manufacturing firms. It generalised the results for all such firms without distinguishing the type of product each firm manufactures. Further studies can be done with special emphasis on the type of product manufactured to establish if specific methods of sales forecasting are used for particular category of consumer goods.

Another area that could be researched further is on sales forecasting for new products in the FMCG category. Time series was evidently widely used in the FMCG manufacturing firms, mainly due to the existence of historical data of existing products. It would be of importance to find out what methods would be applied when no historical trends exists, like for the case of new products.

APPENDIX 1: LETTER TO THE RESPONDENTS

University of Nairobi,
Faculty of Commerce,
Department of Business Administration,
P.O.Box 30197
Nairobi.
September 2004

Dear Sir/Madam

RE: COLLECTION OF RESEARCH DATA BY MWAURA D. W. REG. NO. D61/8602/98, UNIVERSITY OF NAIROBI.

The above named person is a postgraduate student in the Faculty of Commerce, at the University of Nairobi. He is conducting a research study for his final year project, in the degree of Masters of Business Administration (MBA). For this reason, kindly assist him by giving him a few minutes of your time to fill in the attached questionnaire to the best of your knowledge as it apply to yourself and your organisation.

The information you provide will be treated strictly confidential and will be used for academic purposes only. A copy of the project can be made available to you on request.

Your cooperation will be greatly appreciated.

Thank you in advance.

Yours faithfully,

Dr. Martin Ogutu

Co-ordinator, MBA Program.

e) Others Specify..... []

Where applicable in this section, a scale of 1 to 5 shall be used, where

8. Please tick one of the following statements that best describes your company's annual turnover in Ksh

a) Up to 100 million []

b) 100 million to 500 million []

c) 500 million to 1 billion []

d) 1 billion to 5 billion []

e) 5 billion to 10 billion []

f) Over 10 billion []

10. To what extent do you use the following sales forecasting methods and techniques?

9. Do you do a sales forecast for your firm?

Yes [] No []

a) Delphi Technique [] [] [] [] []

b) Panel Consensus [] [] [] [] []

c) Market Research [] [] [] [] []

d) Jury of Executive opinion [] [] [] [] []

2) Time Series Analysis

a) Moving Average [] [] [] [] []

b) Exponential Smoothing [] [] [] [] []

c) Learning-Experience curve [] [] [] [] []

d) Trend Line Projections [] [] [] [] []

3) Casual Methods

a) Regression Analysis [] [] [] [] []

b) Intention to buy and anticipation survey [] [] [] [] []

c) Econometric Model [] [] [] [] []

d) Product Life cycle analysis [] [] [] [] []

PART B

Where applicable in this section, a scale of 1 to 5 shall be used, where

1. To no extent
2. To a small extent
3. To a moderate extent
4. To a great extent
5. To a very great extent

10. To what **extent** do you use the following sales forecasting methods and techniques?

Dimensions (variables)	[1]	[2]	[3]	[4]	[5]
1) Qualitative methods					
a) Delphi Technique	[]	[]	[]	[]	[]
b) Panel Consensus	[]	[]	[]	[]	[]
c) Market Research	[]	[]	[]	[]	[]
d) Jury of Executive opinion	[]	[]	[]	[]	[]
2) Time Series Analysis					
a) Moving Average	[]	[]	[]	[]	[]
b) Exponential Smoothing	[]	[]	[]	[]	[]
c) Learning-Experience curve	[]	[]	[]	[]	[]
d) Trend Line Projections	[]	[]	[]	[]	[]
3) Casual Methods					
a) Regression Analysis	[]	[]	[]	[]	[]
b) Intension to buy and anticipation survey	[]	[]	[]	[]	[]
c) Econometric Model	[]	[]	[]	[]	[]
d) Product Life cycle analysis	[]	[]	[]	[]	[]

- 4) Others (Specify)..... [] [] [] [] []
- 5) Others Specify)..... [] [] [] [] []

11. Please indicate the appropriate reason(s) for using the method(s)

- a) Less costly to use []
- b) Accurate/reliable []
- c) Easy interpretation of results []
- d) Detailed in analysis []
- e) Flexible to use []
- f) Others, (Specify)..... []
- g) Others, (Specify)..... []

12. What are some of the challenges you encounter when developing a sales forecast?

- a) Lack of reliable/relevant data []
- b) Lack of organisational support []
- c) Poor forecasting skills []
- d) Rapid and inconsistent environmental changes []
- e) No forecasting consultancy services []
- f) Poor communication between parties involved []
- g) Others, (Specify)..... []
- h) Others, (Specify)..... []

13. To what **extent** are you **familiar** with the following sales forecasting methods and techniques?

	[1]	[2]	[3]	[4]	[5]
1) Qualitative methods					
a) Delphi Technique	[]	[]	[]	[]	[]
b) Panel Consensus	[]	[]	[]	[]	[]
c) Market Research	[]	[]	[]	[]	[]
d) Jury of Executive opinion	[]	[]	[]	[]	[]
2) Time Series Analysis					
a) Moving Average	[]	[]	[]	[]	[]
b) Exponential Smoothing	[]	[]	[]	[]	[]
c) Learning-Experience curve	[]	[]	[]	[]	[]
d) Trend Line Projections	[]	[]	[]	[]	[]
3) Casual Methods					
a) Regression Analysis	[]	[]	[]	[]	[]
b) Intension to buy and anticipation survey	[]	[]	[]	[]	[]
c) Econometric Model	[]	[]	[]	[]	[]
d) Product Life cycle analysis	[]	[]	[]	[]	[]
4) Others (Specify).....	[]	[]	[]	[]	[]
5) Others Specify).....	[]	[]	[]	[]	[]

THANK YOU FOR YOUR COOPERATION.

APPENDIX 3: LIST OF FAST MOVING CONSUMER GOODS MANUFACTURING FIRMS IN KENYA

1. Anspar Ltd.
2. BAT Kenya Ltd.
3. Beirdorf (E.A) Ltd.
4. Bidco Oil Refineries Ltd.
5. Bio Food products Ltd.
6. Brookside Dairies
7. Castle Breweries
8. Cadbury Kenya Ltd.
9. Coca-cola Africa Ltd
10. Colgate Palmolive (EA) Ltd.
11. CPC (K) Ltd.
12. Crown foods Ltd.
13. Cussons & Co. Ltd.
14. Delmonte Kenya Ltd.
15. Unilever Kenya Ltd.
16. Excel Chemicals
17. Eveready Batteries (K) Ltd.
18. Farmers Choice Ltd.
19. Haco Industries
20. Kenya Cooperative Creameries
21. Highlands Cannery Ltd.
22. House of Manji
23. UDV Kenya Ltd.
24. Jambo Biscuits
25. Johnson's Wax (EA) Ltd.
26. Kabazi Cannery Ltd
27. Mini Bakeries
28. Kapa Oil Refineries
29. East African Breweries Ltd.
30. Kenya Tea Packers Ltd.
31. Kenya Wine Agencies
32. Sara Lee Household
33. Kuguru Food Ltd.
34. Limuru Dairies
35. Mastermind Tobacco Ltd.
36. Menengai Oil & Soap Factory
37. Mumias Sugar Co. Ltd.
38. Nestle Food (K) Ltd.
39. Orbit Chemical Industries
40. Pembe Food Industries
41. Procter & Gamble
42. Razco Food Products
43. Reckitt & Berkinser
44. Spin Knit Ltd.
45. Swan Industries
46. Trufoods Ltd.
47. Unga Group
48. Wrigley Company (EA)

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