REVENUE MANAGEMENT PRACTICES IN THE INTERNATIONAL AIRLINE INDUSTRY WITHIN KENYA: A CASE STUDY OF AIR FRANCE-KLM GROUP

BY

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UNITED STATES INTERNATIONAL UNIVERSITY - AFRICA

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A Research Report Submitted to the Chandaria School of Business in Partial Fulfillment of the Requirement for the Degree of Masters in Business Administration (MBA)

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STUDENT’S DECLARATION

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

Signed: _________________  Date: _________________
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This research report has been presented for examination with my approval as the appointed supervisor.

Signed: _________________  Date: _________________
Prof. Peter M. Lewa

Signed: _________________  Date: _________________
Dean, Chandaria School of Business
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ABSTRACT
The purpose of this study was to identify the specific revenue management techniques that the Air France-KLM Group applied and their influence on competition in the airline passenger business within the Kenyan market. Specifically the research sought to: first what are the pricing techniques used by the airline to remain competitive?, second how does the airline use inventory management tools to optimize its capacity?, and lastly how does the airline competitively position and benchmark itself using revenue management?

This study applied a descriptive research design since it was found to be the best to fulfill the objectives of the study. The target population for this study was all the 50 commercial department local staff who interacted with revenue management on a day to day basis and split between three department’s sales, marketing, and management at Air France-KLM group. The sample frame for this study was obtained from the company’s local Human Resources department. Stratified sampling technique was adopted for the study and simple random sampling was used to draw sub-samples from each stratum. The sample size for the study was 38 respondents. Primary data was used in the study and collected using semi-structured questionnaires. The questionnaires were administered through a drop and pick method. Data was analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics (mean and standard deviation) were used to measure the strength and differences in responses received. Inferential statistics (correlation analysis) was used to measure significant factors of the study variables that were later on used to run a regression analysis to examine the nature of relationship that existed. Data was represented in the form of tables, and figures that indicated the frequency distribution of the data.

The study showed that pricing of airline seats at Air-France-KLM played a crucial role in improving their revenues, and the organization had various pricing strategies which varied from simplistic for developing markets, to highly tuned developed markets to maximize on profits. Air France-KLM used customer behavior to tailor make its pricing strategies and make products for their different passenger segments, and it had been forced to transition from simplistic pricing strategies to a more segmented and solution focused strategy. The organization had specific prices or fares for different fare classes which had been
predetermined, and these price cabins did not fluctuate significantly, since they were changed periodically based on competitive factors. The organization also used price discrimination based on developments in technology, commercial and current business environment, and it used real-time sales data to update the demand distribution and dynamically sets its prices. The company made use of the seat allocation technique as a standard leg-based revenue management method for optimization and setting its booking limits.

The study showed that Air France-KLM’s ultimate goal was to find the right mix of passengers willing to purchase their inventory to maximize profits. The company had a booking control policy in place that was used as a guideline for allocating seats for optimal allocation, and it used deep discounts classes in cases where a single fare class existed independently and would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger. The study showed that Air France-KLM did not impose limits on the number of requests that could be approved for every class, and its request for a seat was analyzed in real time, based on the unsold seats and time to departure of the flight.

The study further showed that, when Air France-KLM wanted to increase its revenue, it shifted some demand from high demanded flights to flights with low demand. The company predicted carefully the peak seasons and offered discounted tickets for flights out of that period. Despite available steps available for reducing fuel costs, the company still struggled with increased fuel costs, and it did not try to shift the cost to its customers in the form of fuel surcharges. Air France-KLM had a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level.

The study recommends Air France-KLM to ensure that its revenue management relies on the collection of data and factual evidence to support its strategies and tactical application, to increase both revenue and profit. This would increase their profitability since, revenue management uses the basic principles of supply and demand economics, in a tactical way, to generate incremental revenues.
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Thank you and May God Almighty bless you and your families immensely.
DEDICATION

I dedicate this project to my lovely Fiancée.
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Problem

This research is about Revenue Management (RM). RM is the technique applied by organizations to derive revenue from seat sales to maximize profitability which could apply to airlines, hotels, cinemas and other service industry organizations (Belobaba, 2011). The commonly accepted definition of RM is selling the right seat to the right customer at the right price. This statement simplifies the meaning of revenue management but still captures the basic motivation behind the strategy (De Roos, Mills, & Whelan, 2010). RM can also be defined as yield management which is the control and management of reservations inventory in such a way as to increase the airlines profitability given the fare structure and flight schedule (Bish, Bish & Maddah, 1978).

The origin of revenue management can be traced to 1950’s and 1960’s where airlines started practicing discounting on flights which had low load factors and the flights were likely to leave with empty seats (Boer, Sanne Vincent de, 2003). The reasoning behind this theory is that fixed costs of operating in the airline industry are high due to the fixed components such as fuel, airport slots and ground handling amongst other. The consequent variable cost of carrying an additional passenger is quite low and well below the average total cost therefore any revenue received through the sale of an extra ticket brings in additional revenue. In these circumstances airlines evolved slowly to employ a number of price setting techniques to ensure that the airlines get the highest return from the passengers as possible. The mechanism employed is differentiation by cabin, route, flight times as well as ticketing restrictions based on changes, transferability and cancelations (De Roos, Mills, & Whelan, 2010).

Early examples of the differentiation can be seen by introduction of special discounts to students in the 1950’s and 1960’s which is currently a notorious practice in the market especially in Europe and North Atlantic countries which was a way of targeting a huge section of the market which eventually brings returns when they travel in large numbers. Around this period there was also an introduction of the late night coach pricing which was ideally a discount on the last flight of the day which was returning to its hub or to a
secondary airport to reposition for the next days early morning flight. These flights were ideally suffering low loads due to limited focus, poor time schedule and high returns were not expected on such flights but with time optimizing such flights became important to earn extra revenues in competitive environments (De Roos et al., 2010).

In the Early 1970’s British Oversees Airways Cooperation (BOAC) - now British Airways - introduced an advance purchase discount for “early bird” bookers of up to 21 days before departure. This set the stage for a widespread introduction of the “early bird” discounts which is now known as the “APEX” fares in the international markets. These fares required a passenger to book a round trip fare a number of days before departure as well as stay at the destination for a number of days before taking the return flight. The logic behind this discount was to change the booking patterns of passenger to book early so that the airline can fill up the flight earlier than usual towards the day of departure and restrict the remaining seats for passengers willing to purchase as higher fares. American airlines introduced this concept to the US domestic market in 1975 and called it the “Super Saver Fares” with competition following up notable the Texas air international which countered with “Peanut Fares” (Belobaba, 2011).

Revenue Management in the airline industry was practiced to a limited extent up until 1978 when the United States airline industry was deregulated meaning airlines could apply strategies to differentiate their fare prices. Before this deregulation, Airlines applied a less complicated single fare in the markets (city pairs) they served, and this fare was determined by the Civil Aeronautics Board (CAB) in the United States and this model of revenue management was based on a mileage formula which in turn guaranteed the airlines heavy profit margins for the services they provided. These fares increased each year by a percentage of the increase in the costs of operation therefore there was no push by airlines to operate efficiently due to this cushion (Boer, Sanne Vincent de, 2003). The Civil Aeronautics Board also determined which airline flies to what route within the United States (US) therefore limiting competition amongst the airlines as they were limited to compete on service both onboard and on ground as well as departure times and frequency on routes. This therefore brought about overcapacity as airlines increased frequencies so as to grow their
market share as more frequencies and flights were attractive to passengers. With the growth of overcapacity brought in spoilages which is defined as when an aircraft leaves with empty seats since the opportunity to sell those seats has passed; Air travel is considered as a perishable product just like other services and once aircraft departs, all empty seats are considered as opportunity costs (Atasoy, Salani, & Bierlaire, 2014a).

Over the years the global revenue management model has developed continuously and more drastically with the introduction of Ecommerce. The airline price differentiation has completely shifted from selling surplus seats but by segmenting the customer market segments and streamlining restrictions to optimize revenues from each of the segment (Boer, Sanne Vincent de, 2003). Moreover, the revenue management systems have also been developed in the e-commerce era to optimize seat availability based on demand forecasts. These systems are also highly automated with options for human interventions. Despite all these advances there is little knowledge of how the revenue management systems work especially to passengers who constantly face fluctuation of prices which do not follow any logic (Bartke, Cleophas & Zimmermann, 2013).

In the African market, there has been a significant capacity growth with a nine percent compounded annual growth rate between the years of 2005 and 2011 and expected to be higher in the most recent years. This increase in capacity combined with external forces such as escalating fuel prices, unpredictable natural disasters, aggressive competition and regional civil unrest especially in some Africa states create a challenge to the profitability of airlines thus is a pivotal period in improving revenue management practices and system capabilities to ensure no revenue opportunities are lost during this growth cycle. Some of the more established African Carriers have already begun the transformation with updated tools such as Origin and Destination Revenue Management Optimization and New Fare Management systems to remain ahead of the growth curve. The maturity of markets force airlines to be increasingly efficient by relying on revenue management best practices and systems capabilities to extract the additional dollar from the next seat sold, reduce the dilution or at the very least, prevent revenue spill to competitors. African Airlines have learnt from airlines in more developed markets that airlines cannot survive long term without effective revenue
management practices consisting of pricing, inventory management and revenue integrity (Mankowski, 2011).

In the more recent past there has been a major change in the market dynamics with the entry of Low cost carriers in parts of the African continent where traditional flag carriers typically served. This dramatic switch is only a trickle but is expected to potentially boom especially with the tough economic situation in most of the developing countries in Africa. The business model of the Low cost carriers being significantly modified to offer an attractive substitute product to the same market with a lower cost model. This in turn makes it critical for the traditional carriers to survive through improving revenue management practices and system capabilities. The luxury of markets taking time to mature and the adaptation of airlines to revenue management practices accordingly will now accelerate further in order to extract every additional Dollar from the next seat sold. It will be truer than ever in the coming years for airlines within this marketplace not to survive long term without effective revenue management practices without the three critical elements pricing, inventory management and revenue integrity (Mankowski, 2013).

Air France–KLM is a Franco-Dutch airline holding company incorporated under French law with its headquarters at Charles de Gaulle Airport in Tremblay-en-France, near Paris. The group has offices in Montreuil, Seine-Saint-Denis, Paris, and in Amstelveen, Netherlands. Air France–KLM is a result of a merger that took place in 2004 between Air France and Koninklijke Luchtvaart Maatschappij (KLM). In October 2005, Air France Cargo and KLM Cargo - the two freight subsidiaries of the group - merged their commercial activities. The Joint Cargo Management Team now operates the organization worldwide from the Netherlands. Both Air France and KLM are members of the SkyTeam airline alliance. The company’s namesake airlines rely on two major hubs, Amsterdam Airport Schiphol and Paris–Charles de Gaulle Airport.

In a 2007 opening for a majority takeover of the loss-generating Alitalia, Air France–KLM was one of three bidders, and was favored by the board of Alitalia, however, it was later reported that negotiations had been abandoned. After the acquisition of Alitalia and Air One
by *Compagnia Aerea Italiana* in 2008, Air France–KLM was interested once again in purchasing a participation in the new merged company, and in 2009, Air France–KLM bought a 25% share in the new merged company. In 2008, Air France-KLM was the largest airline company in the world in terms of total operating revenues, and also the largest in the world in terms of international passenger-kilometres. Air France–KLM was categorized as one of World’s 10 safest airlines in August 2011, and in 2013, Air France–KLM sold its subsidiary CityJet to Intro Aviation.

### 1.2 Statement of the Problem

The airline business has in recent years significantly faced reductions in margins due to globalization and the entry and growth of competitors such as the Gulf Carriers who are heavily subsidized by their respective governments therefore being able to compete with the rest of the world airlines with a lower cost structure (Mankowski, 2013). Airlines have therefore been forced to develop significant innovations in their revenue management systems to not only compete in the hyper competitive market but to get the best revenues based on the varied demand (Dunleavy & Phillips, 2009). The entry of Low cost Carriers has also been a key factor that has disrupted the airline industry profitability therefore traditional Airlines such as Air France-KLM have been forced to innovate on their Revenue management tools to compete with the low cost carrier’s business model (Mankowski, 2013). Therefore airlines have developed several revenue management and pricing techniques, this research was carried out on Air France-KLM to examine revenue management techniques that the airline applied to remain competitive.

The Air France-KLM group was formed in 2004 through a merger of one of the two major European carriers; the Dutch carrier, KLM airlines and the French carrier Air France which were both separately formed in 1919. The Two airlines still operate under their separate brands preserving their valuable brands over the years with a combination of resources to benefit from synergies. KLM has operated to Nairobi Kenya since 1967 and was one of the first international airlines to operate to Kenya. Currently KLM operates daily to Nairobi to Amsterdam with a Boeing 747-400 aircraft carrying 413 passengers daily. On top of this KLM owns 26% of the Kenya Carrier Kenya Airways and also Operates a joint venture to
Europe therefore jointly offering over 1100 seats daily. The Air France-KLM Group operations to Kenya are with the brands KLM and subsidiary Kenya Airways. The Kenyan Market is a hyper competitive market being the Hub of East Africa with more than 15 international airlines operating to Nairobi therefore creating competition to satisfy the same passengers needs which pushes prices lower due to high supply (Air France-KLM, n.d.).

Although there have been several studies (Pak & Piersma, 1982; Bish, Bish & Maddah, 1978) concerning the subject of revenue management and how it improves competitiveness in European, American and Latin Airlines, few studies (Dunleavy & Phillips, 2009; Hsu & Lee, 2012; Escobari, 2012) have attempted to identify the revenue management activities in African airlines. There have been no conclusive results that indicate an existing relationship between RM practices and airline competitiveness. Secondly, no studies had been conducted on Air France-KLM in relation to RM practices and airline competitiveness, thus, this research sought to analyze the RM activities that had been adopted by Air France-KLM Group and how these RM activities enabled the organization remain competitive.

1.3 Purpose of the Study
The purpose of this study was to identify the specific revenue management techniques that the Air France-KLM Group had applies and their relevance to increase their competitiveness in the airline passenger business within the Kenyan market.

1.4 Research Questions
The study was guided by the following Research Questions:

1.4.1 What are the pricing techniques used by Air France-KLM to remain competitive?
1.4.2 What techniques does Air France-KLM use in inventory management to optimize usage of its capacity?
1.4.3 How does Air France-KLM competitively position and benchmark itself using revenue management?
1.5 Significance of the Study

1.5.1 Management of Air France-KLM
The management of the airline can use this information to better formulate their revenue management strategies in the industry with more information on the study of their practices as well as documentation of the techniques. The management may use the recommendations offered and tailor them to best fit their organization.

1.5.2 Management in Airlines and Hotel Industry in Kenya
Revenue management practices can be duplicated in the airline and hotel industries and the management that work in these fields may apply techniques discussed in this study to push up yields in their respective industries.

1.5.3 Airline Passengers
This study may be significant to airline passengers since the passengers have the opportunity to understand the pricing perspective from the airline side, as well as what goes on in terms of setting up pricing. This may assist them in making better decisions when it comes to making purchases of airline tickets.

1.5.4 Academicians and Learning Institutions
This study research has enriched existing studies done in this field, and adds content and perspective to the subject matter. Future scholars may use the results of this study as a foundation to explore more knowledge in the same field.

1.6 Scope of the Study
The study was done within the Air France-KLM Group. Data was collected in the month of March 2017. The results of the study were limited to Air France-KLM Group. The quality of data was great since the variance of responses was high due to the small sample size and the diverse responsibilities within the company as well as the geographic dispersion of the staff.
1.7 Definition of Terms

1.7.1 Revenue Management

This is defined as techniques applied by organizations to derive revenue from seat sales to maximize profitability which could apply to Airlines, hotels, cinemas and other service industry organizations (Bergantino & Capozza, 2015).

1.7.2 Joint Venture

This is defined as a business arrangement in which two or more parties agree to pool their resources for the purpose of accomplishing a specific task. This task can be a new project or any other business activity (Taylor & Kimes, 2011). It can also be defined as a business entity created by two or more parties, generally characterized by shared ownership, shared returns and risks, and shared governance (Hsu & Lee, 2012b).

1.7.4 Go Shows

The opposite of No shows and they hold none confirmed seats and show up on a flight without prior reservations (Burger & Fuchs Matthias, 2004). This can also be defined as a travel situation where a passenger checks in at an airport in the hope of getting an earlier flight than was reserved (Taylor & Kimes, 2011).

1.8 Chapter Summary

This chapter has looked at the purpose of the study which was to identify the specific revenue management techniques that Air France-KLM Group applied and their relevance to remain competitive in the airline passenger business within the Kenyan market. The chapter has offered the research questions that guided the study. The study has offered readers with the significance and scope of the study, and lastly definition of key terms used. The second chapter covers the literature review of the topic, the third chapter covers the research methodology used in the study, the fourth chapter covers the study results and findings, and finally the fifth and last chapter covers the study discussions, conclusions, and recommendations.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter covers literature review of the existing research literature on airline pricing, inventory management and competitive positioning techniques that are already in existence in the industry. This chapter is focused on a discussion of the literary works of various scholars that are found to be related to the topic and are considered to be helpful in addressing the research questions. The literature was reviewed to identify the loopholes in the existing literature that could be addressed during the course of the research, majorly, using the results from the primary research and addressing the problems. Furthermore the gaps identified during the literature review have been highlighted in the last chapter that would help other researchers to select the topics for their research. The key literature to be covered in this chapter was based on the research questions which were, first what are the pricing techniques used by the airline to remain competitive, second how does the airline use inventory management tools to optimize its capacity, and lastly how does the airline competitively position and benchmark itself using revenue management.

2.2 Pricing Techniques Used by Airlines

Pricing of the seats of an airline play a crucial role in improving the revenues of the airline. The debate is on the optimal pricing strategy to be set that maximizes the revenues collected over the selling horizon (Mankowski, 2011). This is known as the pricing problem and in this type of problem capacity is fixed and the demand is considered to be sensitive to price (Boer, Sanne Vincent de, 2013). The pricing research can be divided into static pricing model, dynamic pricing models and joint resource (Seat) allocation and pricing models (Kairu Margaret Wanjiku, 2014). Static models are based on aggregate demand distribution while dynamic models represent demand as a controllable stochastic process (Boer & Vincent, 2013).

2.2.1 Customer Segmentation

Airlines across the world find themselves in different stages of marketplace development where pricing strategies vary from simplistic for developing markets such as Africa, to highly
tune such as Europe and North America where fares are more specified to target a unique
group of customers (Taylor & Kimes, 2011). Customer behavior is usually the best inputs to
tailor make pricing strategies as characteristics of customers when purchasing a ticket is
studied (Boer & Vincent, 2013). A broad level example is price sensitive passengers are
usually not schedule sensitive and will pick the option that gives them value despite long
layovers (Taylor & Kimes, 2011). On the other hand schedule sensitive passengers will be
less price sensitive and will want to travel on specific days at whatever costs. By utilizing
this knowledge of customer behavior airlines can tailor make products for their different
passenger segments with varying degrees of differentiation through fare rules and conditions
to ensure each segment is targeted and get their value but compromise on what they do not value (Mankowski, 2011).

Differentiation may also be done through point of sale which is usually at country level.
Point of sale is where the ticket is sold from for the journey and most commonly is the point
of commencement of the journey (Taylor & Kimes, 2011). Differentiation based on Europe,
America or Africa can be done without sacrificing revenue production from each of those
segments (Hsu & Lee, 2012). Different market places have different degrees of yields per
each passenger segments due to economic differences as some markets are driven by labour
traffic, others business passenger, others leisure but regardless of marketplace, segmentation
fundamentals hold true across all regions of the world (Taylor & Kimes, 2011). Despite this,
no airlines can effectively segment its passengers without having to consider a balance with
other factors that impact its pricing strategies such as competitive landscape, internal fare
management capabilities, distribution of fares, market dynamics (Boer & Vincent, 2013), and
pricing to inventory relationship though fare class optimization concepts (Hsu & Lee, 2012).
All these factors influence segmentation and revenue and they all require heavy focus on
analytics, empowerment to say no to sales teams when needed and rigorous focus on
Revenue per Available Seat Kilometer (RASK) performance at the network, region or market
level (Mankowski, 2013).
With the entry of Low Cost Carriers who have lower fare levels in many markets airlines have been forced to transition from simplistic pricing strategies to more segmented solutions focused on moving to highly tuned revenue management environments as in Europe and North America where segmentation is highly advanced (Taylor & Kimes, 2011). Airlines will have to be forced to find new creative ways through fare structure to generate the same revenue on flights in Low cost carriers’ competitive markets where floor prices have shifted significantly downwards (Mankowski, 2011).

2.2.2 Static Pricing Models

This is where the specific prices or fares for the different fare classes are predetermined and the seller’s problem is to accept or reject booking requests within the booking horizon. This is the base of pricing till today where pricing is fixed depending on the service being consumed (Hsu & Lee, 2012). The pricing model segments service in many different ways such as based on cabin where Economy, premium economy, business and first class passengers are all charged a separate price. However the price in these cabins do not fluctuate significantly and are periodically changed based on competitive factors such as competitors prices (Taylor & Kimes, 2011).

The cabins are further individually segmented based on service on offer. This is where separate restrictions are imposed for subclasses within a cabin. For instance an economy fare will have a range of ten subclasses to pick from and a passenger will pick one that suits his travel needs for instance the lowest of the ten fares will be heavily restricted with no baggage allowed, non-refundable, minimum and maximum stay restriction, no stopovers and no change fees (Mankowski, 2011). These are just a few of many more ways of restricting. As the sub classes go higher the restrictions loosen up to the higher in the cabin which will be fully flexible (Hsu & Lee, 2012). These are put in place to maximize on returns based on the consumer needs where each passenger will purchase based on their needs but at the same time targeting all consumer segments (Taylor & Kimes, 2011).
Due to the numerous routes that airlines operate to it will not be prudent and economically viable to constantly adjust the pricing so as to take advantage of demand surges. The several classes are assumed to take care of the demands shifts however under dynamic pricing the demand focus is much more focused (McAfee & de Velde, 2015).

2.2.3 Dynamic Pricing Models
Dynamic pricing has been examined in several literatures in both operational and economic management as a tool to set ticket fares for two or more customer segments (Hsu & Lee, 2012). Revenue management is defined as selling the right product to the right customer at the right time (Burger & Matthias, 2014). This brings the aspect of marginal cost pricing and the product costs which are considered to have less impact and therefore concentration on the relation between price and demand elasticity (Burger & Matthias, 2014; Hsu & Lee, 2012). In the recent years researchers in operations have recognized that capacity costs play an important role to measure the base price of capacity usage in a multiple pricing environment (Hsu & Lee, 2012).

Dynamic pricing is a form of price discrimination by using developments in technology as well as commercial developments in the current business environment (Boer & Vincent, 2013). The practice developed in the United States (US) by electricity supply companies where rates fluctuated depending on time of use for consumers (Hsu & Lee, 2012). This allowed the producers to pass on to consumers at least part of the price variation occurring within a given period thus decreasing the demand when supply is the tightest (Arslan, Frenk, & Sezer, 2015). Once consumers were exposed to these prices they were likely to adjust their consumption patterns especially during critical peak periods. Experiments with dynamic piecing proved that almost a third of the demand was shifted from the peak periods (Burger & Matthias, 2014).

The Goal of dynamic pricing as a business strategy is to adjust the product price in a timely fashion in order to allocate the right services to the right customers at the right time. If prices are viewed as variable and can be controlled on a continuous basis, product prices can be set dynamically in order to maximize expected total revenues (Arslan, Frenk, & Sezer, 2015).
Perishable goods are most practically used in dynamic pricing because of three key characteristics. First the quantity is fixed and reordering is not possible meaning the production and consumption of the service is simultaneous. Second there is a deadline for sales as the flights have to depart with or without passengers. Lastly the marginal cost of selling one or more items is low (Burger & Matthias, 2014).

Applying this principle to the airline industry on a specific flight shows that a flight seat is perishable (Mcafee & de Velde, 2015). Once the aircraft is planned to depart on a specific flight the capacity is fixed and at the time the aircraft departs, all empty seats are considered valueless as they can no longer be sold (Burger & Matthias, 2014). But is an extra passenger was put on teat seat the marginal cost of selling that seat is quite low therefore comes in dynamic pricing (Mcafee & de Velde, 2015). Therefore instead of pricing different products represented by booking classes, seats can also be priced dynamically based on demand. The differentiation in product be based on two parameters, based on time to departure as well as demand in relation to capacity (Arslan, Frenk, & Sezer, 2015).

The dynamic pricing usually responds directly to market demand by offering an optimal or nearby optimal market fare. It assumes that most customer arrival rates and reservation price distribution are well known before the sale begins (Burger & Matthias, 2014). The bookings patterns are assumed to be known by the airline therefore the booking curve can be projected to anticipate at what period the bookings will come in for a certain future flight. The airline is however limited to using historical data to determine the customer reservation price but as the sales moves forward the airline can use the real-time sales data to update the demand distribution and dynamically set prices (Dunleavy & Phillips, 2009).

The set prices then interact with the demand behavior and may control capacity. High capacity and low demand will reduce prices and the remaining seats will be sold at the expense of the competitors or due to low-price demand (Mcafee & de Velde, 2015). When there is high demand and low supply on a specific flight the fares will increase to protect seats for passengers booking closer to departure who are likely to pay higher due to the urgency of travel (Arslan, Frenk, & Sezer, 2015). The dynamic pricing policy does not
determine a booking control policy at the start of the booking period as the static methods do (Burger & Fuchs Matthias, 2014).

2.2.4 Joint Pricing and Seat Allocation Models
Joint pricing and seat allocation model emphasizes at the importance of considering prices as a part of the overall optimization problem and suggests including them as a decision variable in the seat allocation problem (Taylor & Kimes, 2011). The joint pricing and seat allocation problem was tackled with the objective of broadening the scope of the problem by taking into account the entire airline network in the decision making process (Arslan, Frenk, & Sezer, 2015). The analysis was not focused on the revenues generated by one single flight leg, but by all the airline's Origin-Destination (O&D) itineraries that constituted the network (Mcafee & de Velde, 2015).

The demands for each origin and destination and fare class combinations were assumed to be mutually independent and normally distributed (Taylor & Kimes, 2011). There were no explicit hypotheses regarding the relationship between the demands and fares, or any other fare product characteristics. The demands were known, through the analysis of historical data, and the objective function was the system-wide expected marginal seat revenue (Burger & Fuchs Matthias, 2014). A graph theoretical approach was proposed to determine the subgroup of fare products that would maximize the revenues, given an initial set of fare products. The seat allocation technique used was the standard leg-based revenue management method known as Expected Marginal Seat Revenue (EMSR), even if the focus was the network (Mcafee & de Velde, 2015). The fares remained exogenous variables to the decision process in this study. The approach simplified the optimization problem by reducing the number of fare products available, and then relied on standard EMSR to set booking limits for each O&D itinerary (Taylor & Kimes, 2011).

2.3 Inventory Management Techniques Used by Airlines
In its most fundamental form, the goal of airline inventory management is to provide the highest possible level of service at the lowest total cost (Hsu & Lee, 2012b). This tenet applies whether the inventory manager is tasked with maximizing aircraft and system
availability for a scheduled service passenger or cargo airline, or charter operations (McAfee & de Velde, 2015). Arslan et al. (2015) note that inventory management applies whether the operator has a few aircraft or hundreds and it applies whether the operator is flying charter operations at a moment’s notice, point-to-point scheduled flights, or a complex network of domestic and international routes.

Mohan and Dae (2015) state that, while each inventory manager may face slightly different sets of operational characteristics, the goals of inventory management largely remain the same. At a high level, goals range from preventing delays and cancellations by ensuring part availability and access for maintenance personnel, to ensuring that fill rates are adequate to ensure that passenger convenience items have adequate stock so failures of items can be rapidly addressed by maintenance (Arslan et al., 2015; Mohan & Dae, 2015).

2.3.1 Seat Inventory and Control
The seat inventory control concerns the allocation of the finite seats inventory to the demand that occurs over the time prior to the flight departure. Aircraft seats are considered as inventory such as a furniture shop considers tables and seats inventory as these are all sold to gain revenues (Mankowski, 2013). The ultimate goal is to find the right mix of passengers willing to purchase this inventory as their different price levels to maximize profits. A booking control policy has to be set in place as a guideline to the tools or individuals allocating the seat to aim for an optimal allocation (Mohan & Dae, 2015). Most of the research on airline seat inventory is either on a single flight or in a network. The network is important as most traditional airlines operate on a hub and spoke model which utilizes base hubs as connection points for passengers and this model is mostly related to the traffic management problems. The single flight model is mostly linked to discount allocation problems (Arslan et al., 2015).

2.3.2 Nesting
The availability of each discount class is determined through a process called nesting where subsets of the seats available to various levels of discount fares are managed. Smaller subsets are available to have a step down discounts to moderate and then deep discounts classes in
cases where a single fare class exists independently it would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger (Hsu & Lee, 2012b). This occurs when all seats allocated to either the higher revenue classes are sold while some seats were still available to a lower revenue class (Mohan & Dae, 2015). The use of nesting means that forecasting too much demand in higher revenue classes because poor discount allocation. The access should be gradual meaning that if deep discount seats are available for sale, the moderate and full fare classes should also be available. If Moderate discount classes are available for sale then deep discount classes should also not be available for sale (Hsu & Lee, 2012b).

![Figure 2.1 Revenue of Marginal Reservation to Allocation](image)

**Figure 2.1 Revenue of Marginal Reservation to Allocation**

Figure 2.1 shows a description on the share of allocation of reservations amongst the three general fare categories to have the perfect mix to maximize revenues and minimize opportunity cost through empty seats. The first section shows the few full fare seats which have the highest yields (Hsu & Lee, 2012b). Only a few passengers are willing to purchase at
this price therefore only a limited number of seats are allocated to this section. When demand is high, these are the only seats that are usually available for sale (Arslan et al., 2015). The Second level is the moderately discounted fares which are relatively high yielding but lower than the full fare seats. A slight discount is given on the full fare to attract more passengers so as to have a balance on the load factors as well as some yields. The last are the Deep discount seats which are usually super discounted to fill up the flights which would have left with empty seats (Hsu & Lee, 2012b). These seats are usually restricted with strict rules and penalties to discourage passengers who would afford full fare and moderate discount fares from purchasing them (Mcafee & de Velde, 2015).

2.3.3 Single-Leg Flights

Single Leg seat inventory controls, the booking control of each flight leg are independent of each other (Dunleavy & Phillips, 2009). Typically it’s assumed that the different fare classes exist to serve each type of customer and therefore when a request is made for a certain booking class and it turned down the customer is lost as that is the only fare class they can purchase. This is called perfect market segmentation (Escobari, 2012).

In the single leg flights there are two problems versions the static and dynamic options. The static problem assumes a sequential demand for each fare class. The demand first comes in for the lowest booking classes followed by the next booking classes for the next lowest classes moving upwards (Dunleavy & Phillips, 2009). The inventory control model therefore works by imposing limits on the number of requests that can be approved for every class (Arslan et al., 2015). These limits are set up by analyzing the total demand for each class, since the arrival order of booking requests are fixed. The dynamic problem maps each class demand as a stochastic process. This means each request for a seat it analyzed real time based on the unsold seats and time to departure of the flight (Mohan & Dae, 2015). It is an opportunity costing model where the pros and cons of accepting a request based also on other factors such as overbooking, cancelations, No-shows and Go-Shows. This model maximizes the access to seats available based on the rationalization of the revenues forfeited and the demand expected between then and the day of the flight departure (Dunleavy & Phillips, 2009).
2.3.4 Network Seat Inventory Control

In this inventory control system the airline maximizes the revenue simultaneously from all flights across the network. One way to do this is to distribute the revenue of an O&D over its legs and apply a single leg seat inventory control to the individual legs through an action called Prorating (Arslan et al., 2015). The basis of this model was due to the increased focus and expansion of the airlines hub and spoke models therefore there has been a dramatic increase in the number of passenger itineraries that involve connections to different flights. This increases the networks effects which cannot be accomplished by single leg control (Mohan & Dae, 2015).

2.3.5 Overbooking

Airline reservation systems are based on the environment that the reservations are done for future itineraries and due to the segmentation of passengers, some fare groups allow customers to either cancel their bookings with or without penalties depending on the restrictions (Mohan & Dae, 2015). In other cases passengers will not show up for the flight due to various reasons either due to illness, traffic delays or One Way Travel (Boer & Vincent, 2013). One way tickets are usually not discounted due to imbalance issues on the network therefore these fare ends up being much more expensive than Return Fares and some passengers who have discovered this end up purchasing the return fare and do not use the return coupon, this is known as coupon thrashing (Bish et al., 2016).

Overbooking is about finding the right balance between the opportunity cost of empty seats for which demand was turned down (Spoilage) and the cost of having to deny boarding to a number of passengers when the flight is oversold (Mohan & Dae, 2015). When there is an oversell on a flight, the extra passengers receive direct compensation from the airline usually in cash or flight vouchers, it also impacts the airline negatively through loss of goodwill from the passengers especially in future choices on repeat purchases (Bartke et al., 2013).

The above reasons can be a significant loss of revenues for the airline therefore overbooking was introduced. Recent studies have shown that in the airline and car rental industries that on average only fifty percent of the original bookings survive, others either cancel or make
adjustments to their reservations (Escobari, 2012). American airlines estimates that about fifteen percent of seats on sold-out flights would be unused if reservation sales were limited to aircraft capacity (Bish et al., 2016). Therefore, to avoid this revenue loss Airlines commonly allow reservations to exceed capacity in anticipation of non-materialization of some bookings which may lead to some drawbacks such as some passengers being denied the flight service therefore entitled to compensation (Mohan & Dae, 2015). The overbooking limited should therefore be set in a smart way to utilize the most available capacity while honoring the reservations of most of the customers. Poor overbooking decision making can be costly because if reservation levels are too low the flight has cancellations and No shows then the flight departs with empty seats that could have been filled by turned away demand. Empty seats on sold out flights are called spoilage and represent the lost –opportunity cost to the airline (Bish et al., 2016).

Overbooking has been historically linked to the airline industry and has been practiced since the 1960’s and 1970’s prior to the deregulation of the airline industry in America. Airlines used to practice overbooking discretely without informing its passengers of the consequences (Escobari, 2012). A law Suit won by Ralph Nader in 1976 changed this practice and since then airlines have been obligated currently in the terms and conditions on the back of the ticket (Mohan & Dae, 2015). Other ways of managing over bookings have also been developed motivated by research in economics, and some airlines currently manage overbooking as an auction where affected passengers are offered compensation such as a travel voucher of some monetary value to be used for future travel (Escobari, 2012). This therefore allows passengers who are willing to stay to volunteer themselves to take the compensation for denial of boarding and free up seats for excess passengers (Bish et al., 2016). If the passengers are put on another airline the offloading airline will pay the other airline for transportation (Mohan & Dae, 2015).

Research done in this field has also been divided into static and dynamic models. In the static model, a fixed overbooking level is set based on capacity of the flight at the beginning of the booking period and it determines the maximum level of bookings can be accepted on a flight at any given time (Escobari, 2012). The dynamic model on the other hand focuses on
individual booking requests over time, and which can be accepted or denied even though the confirmed reservations already exceed the capacity of the flight (Boer & Vincent, 2013).

2.3.6 Revenue Integrity

This is the action that is closely related to pricing where airlines prevent revenue from leaking out of the enterprise by employing specialized, business rule driven systems that clean bookings within the airline reservation system and prevent what is known as ‘Churn’ (Mankowski, 2013). It is some form of audit that seeks to minimize the abuse on systems as fares are usually based on rules and these rules may be abused by internal and external stakeholders mostly travel agents (Mankowski, 2013).

Most Airlines distribute their stock through global distribution systems which allow agents from all over the world to have access to reserve seats on their flights (Bartke et al., 2013). This give way to irregular bookings made on seats held which are unlikely to be used and this is considered as a loop hole in the revenue process (Atasoy et al., 2014a). This is because a seat is blocked and unavailable for sale during prime booking periods or released close to departure too late for a potential sale and this is an opportunity cost where a potential sale is lost while the aircraft departs with an empty seat while the airline has incurred the distribution cost. Airline pricing is usually steered but demand and this demand forecasts determine how much inventory will be allocated at what price (Pak & Piersma, 2012). The demand forecasts if inaccurate will allocate faulty information to the revenue management system which in turn causes recurring losses due to the inaccurate booking information fed (Mankowski, 2011).

Airlines have therefore put in place third party tools which offer continuous rigorous audit on the reservation systems based on understandable business rules that in the end allow the airline to cycle of bad data fed into the revenue management tool (Arslan et al., 2015). The process entails three main parameters to clean up the flights. First, the system looks for potential bookings with fictitious names that are outside the norm of typical traveler names (Smith, Leimkuhler & Darrow, 2012). Second, the system will look for duplicate bookings also known as Dupes where multiple bookings under the same name, itinerary or travel
period are cancelled and only one booking is maintained (Arslan et al., 2015). Lastly, a procedure known as flight firming which is cancelation of the bookings that have not been ticketed within the predefined ticketing time limit (Pak & Piersma, 2012). Once all above checks have been processed, the irregular bookings will be cancelled leaving majority of the genuine bookings to be used for demand forecast while the remaining cancelled bookings are put back into inventory for sale and this results in less booking churn (Mankowski, 2013).

With the new development on Low cost Carriers in the recent year’s revenue integrity plays a greater role in maintaining current revenue levels and positioning established airlines for potential growth as plugging potential leaks will be a paramount objective due to still competition (Lohmeier, Hess, & Byberg, 2008). Not being able to control the booking churn will lead to high costs and limit the amount of inventory an airline has for sale and this is where the low cost carriers have the advantage due to their strict focus on costs. Thus revenue integrity is the key channel for airlines to reduce costs from the global distribution systems fees and provide better inputs for the revenue management systems so that every dollar generated from these safeguards provides the carrier with sustainable revenue production into the future (Mankowski, 2011). As the African marketplace is about to change drastically to be like the American, Europe and Asian skies where low cost carriers presence has been established it demands more creative pricing schemes, highly efficient management of inventory and the expanded security of revenue integrity checks will need to be escalated and sustained in daily business processes to maximize revenue production in the new market dynamics (Lohmeier, Hess, & Byberg, 2008; Mankowski, 2011).

2.4 Airlines Competitive Positioning and Benchmarking

The environment within which the airlines operate is very competitive and dynamic. In order to achieve profitability, an airline needs to foresee the future market conditions and allocate the resources in order to harmonize the supply and demand (Vissak, 2010). Planning and marketing-function of an airline is responsible for defining of products and determining of the sales method. These activities are parallel, since planning and marketing for every flight begin five and more years in advance and last continuously from the passenger’s boarding to their arrival at the destination (Bartke et al., 2013).
Competitive positioning of airlines in order to achieve profitability is greatly determined by right coordination of supply and demand. Planning and marketing-function can be presented as a process, and each of them controls specific aspects of this process and is user-oriented (Mankowski, 2011). The basic sense and objective of the work is to indicate the factors that bring significant contribution to optimal positioning of airlines in the everyday market competition (Vissak, 2010).

2.4.1 Seasonal Pricing

Seasonal pricing is a tool for charging higher prices at times of bigger demand when capacity constraints cause high marginal costs (Vissak, 2010). In the aviation industry, changes in capacity utilization in different days or different flights generate differences in the seat cost on flights (Atasoy et al., 2014a). Seasonal pricing is thus defined as lower-than-normal price offered as incentive to buyers to make out-of-season purchases for seasonal goods or services (Vissak, 2010). During the peak period, most of the aircraft are in the air and expected shadow costs of capacity will be higher (Vissak, 2010; Atasoy et al., 2014a).

Due to capacity constraints during periods with increased demand, if airline wants to increase revenue it must shift some demand from high demanded flights to flights with low demand (Vissak, 2010). For instance, implementation of advance purchase rule can be a strategy for maximizing revenue for airline, which has to face capacity constraints in periods with high demand (Smith, Leimkuhler & Darrow, 2012). Carrier should predict carefully the peak seasons and offer discounted tickets for flights out of this period. Passengers with low time costs who originally wanted to fly in the peak season, will move to low demanded flights (Vissak, 2010).

2.4.2 Fuel Costs

Fuel prices are an economical issue. Even at lower prices many companies feel they pay more than is fair. As a result, airlines and policy makers are wondering how best to respond to fuel prices. Which policies are considered optimal depends on how the problem is defined (Atasoy, Salani, & Bierlaire, 2014b). If the only concern is affordability, then price
minimization policies may seem sensible, but considering other impacts, such policies are undesirable because they impose costs elsewhere in the economy, and increase total fuel consumption which exacerbates other economic, social and environmental problems. When all impacts are considered, solutions that increase transport system efficiency are usually considered best (Vissak, 2010).

Increasing fuel price creates significant pressure on airlines. In the past fuel was approximately between ten and fifteen percent of total operational costs. Today it is the largest cost part representing thirty five percent of the total costs (Arslan et al., 2015; Smith, Leimkuhler & Darrow, 2012). Despite of all steps reducing fuel costs, airlines are still struggling with increased costs. Therefore, if carriers have higher fuel costs, they try to shift costs to customers in the form of fuel surcharges (Smith, Leimkuhler & Darrow, 2012). Airline representatives claim that increasing fuel price will cause more expensive air travelling, but prices cannot rise to a level that will not be accepted by the market or over a level of competitors. Nowadays, it is common that carriers increase fuel surcharges. Passengers pay these mandatory fees at the time of booking (Atasoy, Salani, & Bierlaire, 2014b).

2.4.3 Low Cost Carrier Model
Most low-cost carries do not segment market on the basis of willingness to pay for the air ticket with different conditions and restrictions. Conversely they offer at any time a single price for one product at each departure (Arslan et al., 2015). This price is generally increasing with approaching departure. As offered air tickets are one-way tickets, minimum stay at the destination or Saturday night rule cannot be applied (Mankowski, 2011).

On the other hand tickets are non-refundable and ticket changes are either completely prohibited or a subject to any administrative change fee. Capacity control in this case is not a problem, because instead of more various products for sale there is only one for sale at any one time (Mohan & Dae, 2015). The problem is deciding when to close the sale of tickets in the one particular price and open sale in the next price level. This requires closer integration
of pricing department and RM. RM main objective is therefore to maximize revenue through dynamic pricing, which means managing price levels currently on sale (Bartke et al., 2013).

2.4.4 Generic Strategies

‘The three generic strategies’ concept by Porter (1980) is a simple matrix image with three different segments in which a company can be classified in. Figure 2.2 below shows the three main generic strategies that airlines adopt either focus, overall cost leadership or differentiation.

![Figure 2.2 Generic Positioning Strategies](image)

2.4.4.1 Differentiation

On the horizontal levels in Figure 2.2 there are two different aspects to be considered – a classification concerning the expansion of the company’s product range. The two dimensions are either industry wide or a particular segment only (Mohan & Dae, 2015). That is to say in the latter one the product only serves a special part of the industry. With a differentiation strategy, the company competes in the marketplace by providing a product or service that is unique in the industry and charges a premium price for its product. The uniqueness can be associated with design, brand image, technology, features offered, dealers, network, or customer service or anything that adds customer value, or, at least, perceived customer value (Porter, 1980). A differentiation strategy does not have to add value at all; it just has to be
something that the customer perceives to be better or worth paying (Pak & Piersma, 2012). Differentiation is a viable strategy for earning above average returns in a specific business since the resulting brand loyalty lowers customers’ sensitivity to price (Porter, 1980). Therefore brand loyalty can be one of the most powerful competitive weapons of a differentiator.

In the airline business this is for example only dealing with cargo transportation or the other way round only transporting passengers. On the other hand an industry wide product range includes all parts of the airline business, from passenger up to cargo (Arslan et al., 2015). This distinction is important because the wider a company expands their portfolio the more complex management and administration becomes. That includes also more costs and a more diverse customer base needs to be addressed (Pak & Piersma, 2012).

On the other hand, a company which only operates in one segment of the market can draw a clear perimeter both concerning the marketing and portfolio. This is likely to result in a simplified cost structure as well as less administrative complexity (Arslan et al., 2015). The vertical differentiation is between uniqueness perceived by the customer and low cost position. The second one is easy to understand as it speaks for itself. The airlines operating in this dimension put their main effort in providing a product (range) for a minimum of costs. Therewith these airlines try to compete in the market by offering a price more than a product.

The uniqueness which needs to be perceived by the customer is more difficult to describe. In this dimension the opinion of the customer is relevant (Pak & Piersma, 2012). This is on the one hand difficult to find out and on the other hand hard to rate. But this part also is in favor for not reflecting the actual performance of a product range but more the way the customer feels and sees it. That means it is not necessary to be unique as long as the customer perceives it as such (Lohmeier, Hess, & Byberg, 2008).

A big advantage behind the differentiation strategy is that it allows firms to insulate themselves partially from competitive rivalry in the industry (Peteraf, 2013). When firms produce highly sought-after, distinctive products, they do not have to engage in destructive price wars with their competitors (Feurer & Chaharbaghi, 2014). A major advantage behind
differentiation is that customers of differentiated products are less sensitive to prices. In practical this attitude means that firms may be able to pass along price increases to their customers (Peteraf, 2013). Another advantage is that strategies based on high quality may, up to a point, actually increase the potential market share that a firm can gain (Parnell & Hershey, 2015). Finally, differentiation processes substantial loyalty barriers that firms contemplating entry must overcome (Feurer & Chaharbaghi, 2014). Highly distinctive or unique products make it difficult for new entrants to compete with the reputation and skills that existing firms already possess (Peteraf, 2013).

A big disadvantage associated with differentiation is that other firms may attempt to “out differentiate” firms that already have distinctive products by providing a similar or better product (Powers & Hahn, 2014). Thus, differentiation strategies, while effective in generating customer loyalty and higher prices, do not completely seal off the market form other entrants (Feurer & Chaharbaghi, 2014; Powers & Hahn, 2014). Another disadvantage of differentiation is the difficulty in sustaining a price premium as a product becomes more familiar to the market (Parnell & Hershey, 2015). As a product becomes more mature, customers become smarter about what they want, what genuine value is, and what they are willing to pay. Price premiums become difficult to justify as customers gain more knowledge about the product (Powers & Hahn, 2014).

Differentiation also leaves a firm vulnerable to the eventual “commoditization “of its product, service offering (Allen & Helms, 2016). Or value concept when new competitors enter the market or when customers become more knowledgeable about what is available (Parnell & Hershey, 2015). Over time, firms that are unable to sustain their initial differentiation-based lead with future product or service innovations will find themselves at a significant, if not dangerous, cost disadvantage when large numbers of customers eventually gravitate to those forms that can produce a similar product or service at lower cost (Allen et al., 2015). Finally firms also face risks of overdoing differentiation that may overtaxes or overextend the firm’s resources (Allen & Helms, 2016). Excessive differentiation can seriously erode the competitive advantage and profitability of firms as rising operating costs eat into price premiums that customers are willing to pay (Parnell & Hershey, 2015).
2.4.4.2 Low Cost Leadership

Achieving cost leadership means that a firm sets out to become the low cost producer in its industry (Porter, 1980). A low-cost leader should offer a product with features that are the bare essential requirements for industry consumers, since consumer will firstly purchase the product or service for those bare essential. In order for the cost advantage to be effective and sustainable, the company has to gain the cost advantage in manner that is very difficult for rival firms to copy (Bish et al., 2016). Porter explains that low-cost strategy places the firm in a favorable position, provides substantial entry barriers and defends the firm against competitors and powerful suppliers (Lohmeier et al., 2008).

Low cost position basically deals with keeping the costs for production reduced to a minimum. It has to study customers’ interests to find out which additional features are possible to be reduced to a minimum to be able to compete in such a highly competitive market (Pak & Piersma, 2012). Companies in this market segment are not interested in satisfying all various customer groups but they specialize on the customers which are price-conscious. On the other hand the concept of customer perception is more customer-focused. For those companies it is a major concern to maintain an image which pretends to be a constant feature even if the reality is different. Out of these four axes in combination there result three segments which cluster a group of airlines with the same products and similar marketing (Bish et al., 2016). It should be mathematically four of them but the ‘Focus’ is not divided in the image which we have chosen. This could be done by differentiating between a cost advantage and a service advantage. But since the ‘Focus’ is operating on a narrow market the difference of cost positioning is not as necessary as in the broader market (Lohmeier et al., 2008).

The air travel industry is in a process of dynamic change with company’s re-establishing their roles in the marketplace. The growth of low cost carriers in Turkey is one of the most important factors currently shaping the airline industry (Bish et al., 2016). The main idea of Low Cost Carriers (LCCs) is translating the lower production costs to the consumers as lower prices. This leads to price sensitive consumers switching from legacy carriers to low-cost
carriers, specifically in situations where the consumer finds the schedule of the low-cost carrier convenient (Belobaba, 2011).

The appeal of the low-cost leadership strategy is based on the strong relationship that appears to exist between high market share, and high profitability (Pretorius, 2016). Numerous studies (Peteraf, 2013, Feurer & Chaharbaghi, 2014; Allen et al., 2015) have found that firms with high market share, for various reasons, can command above-average industry profitability over extended periods of time. Some of the empirical findings by Lohmeier et al. (2008) and Feurer and Chaharbaghi (2014) appear to explain at least practically, the relationship between high market share and profitability include economies of scale, risk avoidance by customers, strong market presence, and focused management.

Risk avoidance by customers means that buyers who are currently familiar with the low-cost leader’s products are unlikely to switch to a competing brand of a similar product, unless that brand has something very different or unique to offer. Thus, low-cost producers that achieve a dominant market share position may induce risk aversion on the part of the industry’s buyers (Lohmeier et al., 2008). Powers and Hahn (2014) state that, low-cost firms also have the advantage of being able to sustain price increases passed on by their suppliers. By operating at more cost-efficient levels of production, low-cost firms can more easily absorb increases in the prices of components or ingredients used in their products. For example, Hershey Foods, a low-cost producer of chocolates and candies, is probably in a better position to absorb increases in cocoa prices than other smaller chocolate and candy manufacturers (ibid).

Cost-based strategies are not without their disadvantages, some of them rather extreme. The biggest disadvantage associated with low-cost leadership is the high level of asset commitment and capital-intensive activities that often accompanies this strategy (Allen & Helms, 2016). To produce or deliver services at low cost, firms often invest considerable sums of resources into rigid, inflexible assets and production or distribution technologies that are difficult to switch to other products or uses (Pretorius, 2016). A huge disadvantage facing low-cost firms is that cost reduction methods are easily imitated or copied by other firms.
Cost advantages, particularly in standardized production or service delivery processes, are often short-lived and fleeting (Allen & Helms, 2016).

2.4.4.3 Focus
The third generic strategy is the niche strategy, where the company pursues either a low-cost strategy or a differentiation strategy but in a very limited segment of the market or to a very limited customer group. With a niche strategy the company becomes an expert in a particular market where buyers have distinctive preferences, special requirements, or unique needs. Companies applying niche strategies know everything about that specific market and, therefore, can respond quickly to the needs and desires of that market segment (Lohmeier et al., 2008). For instance, an airline company might limit its focus to business travelers exclusively or to wealthy travelers or to middle income leisure passengers. Also with a geographical niche, a company is concentrating on a well-defined region or locality. For instance, AnadoluJet, the LCC based in Ankara, was established by THY in order to connect Ankara to the rest of Anatolia. The company appeals to new customer segment with lower income (Belobaba, 2011).

This segment can be seen as a contrasting one to ‘Focus’. A company which is assigned in ‘Differentiation’ operates with a product range including all possible products of the related market. So companies which relate to this segment base their profit on before mentioned synergies which arise out of producing diversity (Mankowski, 2011). That means the companies operating in this segment aim to generate economies of scale as well as economies of scope. The latter is described later on and the economies of scale are developed by “increased efficiency in production” having a wider spread demand (Pak & Piersma, 2012). The vast array of offered products needs to deal with a much more complex and therewith difficult way of managing. There is not only a problem of coordinating the operating sequences but also the need to satisfy a huge variety of different customer demands. There are a lot of different target groups to address. Connected to that there is a need for several separate pricing models to be able to compete with other companies (Lohmeier et al., 2008). Those can be focused on overlapping markets.
In respect to the customers view a company which is located in the ‘Differentiation’ segment has the advantage that it is possible to work together with this company on different markets. So once a customer is connected to a company he might want to keep consuming their services. Differentiation generates the possibility to purchase further products which are sold on new market scopes. Therewith the company derives benefits out of earlier relations, which means it generates economies of scope (Vissak, 2010).

The biggest advantage of a focus strategy is that the firm is able to carve a market niche against larger, broader-line competitors (Parnell, 2012). Some firms pursuing this strategy have even been able to locate niches within niches (e.g. handcrafted, Oriental musical instruments), thus further insulating themselves from the attention and efforts of larger, industry-wide players that cannot serve the niche as well (Feurer & Chaharbaghi, 2014); thus, defensibility and avoidance of direct, price-based competition are big advantages that accrue to a focus/specialization strategy (Parnell, 2012).

The biggest disadvantage facing the focus/specialization strategy is the risk that the underlying market niche may gradually shift more toward characteristics of the broader market (Allen & Helms, 2016). Distinctive tastes and product characteristics may blur over time, thus reducing the defensibility of the niche (Parnell, 2012). A related risk is the potential for broad-line competitors to develop new technological innovations or product features that may redefine the buying preferences of the niche. For example, the growing use of flexible, advanced manufacturing technology makes it possible for larger firms to produce ever-smaller quantities of products that could be used to serve a variety of market niches or segments (Peteraf, 2013; Allen et al., 2015).

2.5 Chapter Summary

This chapter clearly reviewed the relevant literature in relation to the Revenue Management practices in the airline industry. The information above incorporated the research objectives that were presented in this study which include the pricing practices and segmentation tools, inventory management tools as well as competitive positioning and benchmarking. The
literature has therefore sparked some interest in how the airline can use some of these tools and modify them to maximize its Revenues. Chapter three covers the research methodology.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction
This chapter presents the research methodology and the study within this chapter authenticated the revenue management techniques used by Air France-KLM. The chapter identifies the various methods and procedures adopted in conducting the study to conclusively answer the research objective stated in chapter one guided by the research questions that have been addressed in chapter two within the literature review. The chapter covers research design, population and sampling design, data collection methods, research procedures and the data analysis methods.

3.2 Research Design
Research design is defined as a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings (Mugenda & Mugenda, 2003). It is also defined as a plan that describes how, when and where data are to be collected and analyze. It is the researcher’s overall for answering the research question or testing the research hypothesis (Cantrell, n.d.).

For this study the applied research design was descriptive research design which is designed to provide a picture of a situation as it naturally happen (Cantrell, n.d.). This research method is used to obtain information that concerns the current status of the phenomena to state what exists with respect to variables or conditions in a situation (Vissak, 2010). The study collected data from respondents on the revenue management practices within their organization in Kenya. The reason for this research design was that it collected the information on what existed without having to alter the environment of study. Mugenda and Mugenda (2003) gives the purpose of a descriptive survey research a seeking to obtain information that’s describes existing phenomena by asking individuals about their perceptions, attitudes, behavior or values. Given that the objective of the study was to identify the revenue management techniques in Air France-KLM in the Kenyan market, a descriptive survey design was found to be the best to fulfill the objectives of the study.
3.3 Population and Sampling Design

3.3.1 Population
A population can be referred to as an accurately defined body of people or objects which under consideration for statistical purposes (Vissak, 2010). The target population for this study was all the 50 commercial department local staff who interact with revenue management on a day to day basis and split between three department’s sales, marketing, and management. Air France-KLM group has an estimated of ninety six thousand global staff with around eighty local Kenyan staff. The local staffs were distributed between commercial, operations, engineering and Cargo departments of which the commercial department was the target population and it comprised of 50 employees and was distributed as shown in Table 3.1.

Table: Population Distribution

<table>
<thead>
<tr>
<th>Department</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>18</td>
</tr>
<tr>
<td>Marketing</td>
<td>12</td>
</tr>
<tr>
<td>Management</td>
<td>11</td>
</tr>
<tr>
<td>Head office</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

Source: Air France-KLM (2017)

3.3.2 Sampling Design
Sampling is the act of picking a few elements from a larger population in a manner that allows a conclusion to be made on the nature of the whole population by only observing the few elements (Mugenda & Mugenda, 2003; Vissak, 2010). Sampling was used in this study to reduce costs, increase the researcher’s efficiency, and to reduce the variance in the data that was collected by ensuring that the data set was small, and thus increased the accuracy of the collected and analyzed data for the study.
3.3.2.1 Sampling Frame
The sampling frame is the list from which the sample is drawn from the population. It is a specific list of all members to be studies from the population (Vissak, 2010). The sampling frame for this study was obtained from the company’s local Human Resources department list of Air France-KLM commercial staff based in the local office in Nairobi. This was done to ensure that the sampling frame was a true representation of the population.

3.3.2.2 Sampling Technique
The census sampling technique was adopted for the study. Census sampling technique is a sampling process of scientifically obtaining and collecting information about the elements of a given population (Mugenda & Mugenda, 2003). Vissak (2010) defines a census technique as the observation of all units, elements, and or everyone within a target population, it may be referred to as, a comprehensive enumeration which means, a complete count.

The sampling technique was used because it provided the study with a true measure of the population by eliminating the sampling error. The procedure was also selected for the study since it provides the study with a benchmark data that may be used for future studies on Air France-KLM Group, and it offered detailed information about every sub-group that existed within the population.

3.3.2.3 Sample Size
A sample consists of a subset of elements selected from the population according to the sample design, which defines the operations and rules by which a sample is chosen (Vissak, 2010). Census sampling was used to develop the study sample within the Air France-KLM staff in Nairobi that comprised of 50 employees as shown in table 3.1. Table 3.2 shows the number of sample population and the distribution of sample size picked from the target population amongst the departments within Air France-KLM Kenyan office.


Table Error! No text of specified style in document.

<table>
<thead>
<tr>
<th>Department</th>
<th>Sample Population</th>
<th>Sample Size</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>18</td>
<td>18</td>
<td>100%</td>
</tr>
<tr>
<td>Marketing</td>
<td>12</td>
<td>12</td>
<td>100%</td>
</tr>
<tr>
<td>Management</td>
<td>11</td>
<td>11</td>
<td>100%</td>
</tr>
<tr>
<td>Head office</td>
<td>9</td>
<td>9</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>50</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

3.4 Data Collection Methods
Collecting of data incorporates the amassing of facts from the study’s environment. Primary data was required for this study and it was facilitated by the use of a semi-structured questionnaire which was distributed in the Air France-KLM Lavington offices. Primary data was collected using semi-structured questionnaires. The questionnaires contained closed-ended questions to facilitate quantitative analysis. The questionnaires contained likert-scale questions that would be used to rate the application of various factors by Air France-KLM group.

The questionnaires contained four parts namely: Part A which focused on basic questions, Part B focused on pricing practices and segmentation tools used by airlines to remain competitive, Part C focused on inventory management tools in revenue management, and Part D focused on airlines competitive positioning and benchmarking using revenue management. Follow up reminders were used to facilitate a high response rate and the questionnaires would take approximately 15 minutes to complete.

3.5 Research Procedures
The data collection instruments were questionnaires which were administered through a drop and pick method. Questionnaires were preceded by prior permission that was sought from the institution management through an introduction letter. A pilot study was also conducted with five of the local staff to determine the reliability and validity of the instrument. During this
exercise, questions that were perceived to be vague were re-adjusted accordingly for clear communication in the actual data collection process.

For maximum and complete participation of the respondents, the questionnaires were administered through drop and pick method whereby, the questionnaires were left for the respondents to be filled and then picked after some time. Strategies to ensure a high response rate included a clear notification to the respondents that their responses would be used for research purposes only and that the anonymity of their identity would be maintained.

3.6 Data Analysis Methods
Data analysis involves the reduction of accumulated data that has been acquired into a manageable size, developing the necessary summaries, looking for the present patterns, and applying the appropriate statistical techniques (Marshall, 1996). Collected data was cleaned and coded before analysis. This was conducted to ensure that all the questionnaires were completely filled and did not contain multiple responses on a particular question.

Data was analyzed using Statistical Package for the Social Sciences (SPSS). The study employed the use of descriptive statistics. Measures of central tendency, in particular mean and measures of dispersion in particular standard deviation were used to measure the strength and differences in responses received. Inferential statistics that included correlation analysis was used to measure significant factors of the study variables that were later on used to run a regression analysis to examine the nature of relationship that existed. Data was represented in the form of tables, and figures that indicated the frequency distribution of the data.

3.7 Chapter Summary
This chapter has dealt with the research methodologies that guided the researcher to collect and analyze the study data with respect to the research objectives highlighted in the first chapter. The chapter is organized in the following structure: the research design, population and sample, data collection methods, sampling design and sample size, research procedures, data analysis methods and finally the chapter summary. The methodologies that were used
also facilitated the presentation of the research findings for easier understanding. Chapter four presents the results and findings of the study.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction
This chapter focused on the study results and findings, and presents them using tables and figures. The chapter presents the results for the study’s response rate, basic questions, pricing practices and segmentation tools used by airlines to remain competitive, inventory management tools in revenue management, and airlines competitive positioning and benchmarking using revenue management.

4.2 Response Rate and Basic Questions

4.2.1 Response Rate
The researcher handed out 50 questionnaires to the target population and managed to receive all the questionnaires. After data cleaning, all the questionnaires were completely filled and lacked errors, and were thus used for analysis. This gave the study a response rate of 100%. The study rate could be attributed to the small number of respondents that were the study sample size.

Table 4.1 Response Rate

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handed Out</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Collected</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Valid</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td><strong>Response Rate</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4.2.2 Basic Questions

4.2.2.1 Gender
The respondents were asked to indicate their gender and the response received showed that 66.7% were male and 33.3% were female. This shows that majority of the respondents at Air France-KLM group were male.
4.2.2.2 Department
The respondents were asked to indicate the department that they worked in, and the response received showed that 50% worked in the commercial department, 33.3% worked in the sales department, and 16.7% worked in the marketing department. This shows that all the targeted departments were well represented in the study.

4.2.2.3 Years in Organization
The respondents were asked to indicate the number of years they had been with the organization, and the response received showed that 33.3% had worked with the organization for 11-15 years, 25% had equally worked for 5-10 years, and 0-4 years, and 16.7% had
worked for 16 years and above. This shows that majority of the respondents had worked for over 5 years in the organization making them the best candidates for the study.

**Figure 4.3 Years in the Organization**

**4.2.2.4 Education Specialization**

The respondents were asked to indicate their education specialization, and the response received showed that 25% had specialized in marketing, 16.7% had specialized in sales, engineering, and finance, and 8.3% had specialized in economics, reservations, and customer service. This shows that all the respondents were well educated and could understand the questions.

**Figure 4.4 Education Specialization**
4.3 Pricing Practices and Segmentation Tools used by Airlines to Remain Competitive

4.3.1 Rating of Pricing Practices and Segmentation Tools used by Airlines

The respondents were asked to rate the pricing practices and segmentation tools used by airlines to remain competitive in the organization using statements that were provided, using the scale: 1-Strongly Disagree, 2-Disagree, 3-Not Sure, 4-Agree, and 5-Strongly Agree. Their response was as shown in Table 4.2. The mean results of >3.0 shows that the company had effective pricing strategies and segmentation tools, the standard deviation of <1.5 shows that the difference of responses given was insignificant, indicating that they were almost similar. This meant the results could be applied to the whole organization.

<table>
<thead>
<tr>
<th>Statement</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pricing of airline seats plays a crucial role in improving the revenues of Air France-KLM</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>33.3</td>
<td>50</td>
<td>4.33</td>
<td>.778</td>
</tr>
<tr>
<td>Air France-KLM has various pricing strategies which vary from simplistic for developing markets, to highly tuned for developed markets</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41.7</td>
<td>58.3</td>
<td>4.58</td>
<td>.515</td>
</tr>
<tr>
<td>Air France-KLM uses customer behavior to tailor make its pricing strategies and make products for their different passenger segments</td>
<td>0</td>
<td>0</td>
<td>33.3</td>
<td>66.7</td>
<td>0</td>
<td>3.67</td>
<td>.492</td>
</tr>
<tr>
<td>Air France-KLM has been forced to transition from simplistic pricing strategies to a more segmented and solution focused strategy</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>33.3</td>
<td>50</td>
<td>4.33</td>
<td>.778</td>
</tr>
<tr>
<td>Air France-KLM has specific prices or fares for the different fare classes which have been predetermined</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>33.3</td>
<td>50</td>
<td>4.33</td>
<td>.778</td>
</tr>
<tr>
<td>Air France-KLM has price cabins that do not fluctuate significantly and are periodically changed based on competitive factors</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>66.7</td>
<td>33.3</td>
<td>4.33</td>
<td>.492</td>
</tr>
<tr>
<td>Air France-KLM utilizes price discrimination based on developments in technology, commercial, and current business environment</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>4.50</td>
<td>.522</td>
</tr>
<tr>
<td>Air France-KLM uses real-time sales data to update the demand distribution and dynamically sets its prices</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41.7</td>
<td>58.3</td>
<td>4.58</td>
<td>.515</td>
</tr>
<tr>
<td>Air France-KLM uses seat allocation technique as a standard leg-based revenue management method for optimization and setting its booking limits</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>33.3</td>
<td>50</td>
<td>4.33</td>
<td>.778</td>
</tr>
</tbody>
</table>
Table 4.2 shows that pricing of airline seats plays a crucial role in improving the revenues of Air France-KLM as shown by 83.3% of the respondents who agreed. Air France-KLM has various pricing strategies which vary from simplistic for developing markets, to highly tuned developed markets as shown by all the respondents who agreed. Air France-KLM uses customer behavior to tailor make its pricing strategies and make products for their different passenger segments as shown by 66.7% of the respondents who agreed. Air France-KLM has been forced to transition from simplistic pricing strategies to a more segmented and solution focused strategy as shown by 83.3% of the respondents who agreed. Air France-KLM has specific prices or fares for the different fare classes which have been predetermined as shown by 83.3% of the respondents who agreed. Air France-KLM has price cabins that do not fluctuate significantly and are periodically changed based on competitive factors as shown by all the respondents who agreed. Air France-KLM utilizes price discrimination based on developments in technology, commercial, and current business environment as shown by all the respondents who agreed. Air France-KLM uses real-time sales data to update the demand distribution and dynamically sets its prices as shown by all the respondents who agreed. Air France-KLM uses seat allocation technique as a standard leg-based revenue management method for optimization and setting its booking limits as shown by 83.3% of the respondents who agreed.

4.3.2 Correlations for Pricing Practices and Segmentation Tools used by Airlines

A Pearson correlation test was conducted to determine the significance of the pricing practices and segmentation tools used by airlines to remain competitive. Pricing practices and segmentation tools were tested using customer segmentation, static pricing models, dynamic pricing models, and joint pricing and seat allocation models. A p value of <0.05 was the set threshold for all factors that would be considered significant.

Table 4.3 shows that customer segmentation was a significant factor in airline competitiveness \((r=0.845, p<0.05)\). Static pricing model was an insignificant factor in airline competitiveness \((r=0.487, p>0.05)\). Dynamic pricing model was an insignificant factor in airline competitiveness \((r=-0.400, p>0.05)\). Joint pricing and seat allocation was an insignificant factor in airline competitiveness \((r=-0.101, p>0.05)\).
Table 4.3 Correlations for Pricing Practices and Segmentation Tools used by Airlines

<table>
<thead>
<tr>
<th>Airline Competitiveness</th>
<th>Customer Segmentation</th>
<th>Static Pricing Model</th>
<th>Dynamic Pricing Model</th>
<th>Joint Pricing and Seat Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline Competitiveness</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer Segmentation</td>
<td>.845**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static Pricing Model</td>
<td>.487</td>
<td>.647*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.108</td>
<td>.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic Pricing Model</td>
<td>-.400</td>
<td>-.587*</td>
<td>-.655*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>.197</td>
<td>.045</td>
<td>.021</td>
<td></td>
</tr>
<tr>
<td>Joint Pricing and Seat</td>
<td>-.101</td>
<td>-.218</td>
<td>-.372</td>
<td>-.284</td>
</tr>
<tr>
<td>Allocation</td>
<td>.755</td>
<td>.497</td>
<td>.234</td>
<td>.371</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

4.3.3 Model Summary for Pricing Practices and Segmentation Tools in Airlines

A regression analysis test was carried out for the significant factors for pricing practices and segmentation tools. All insignificant factors were left out of the test. Table 4.4 shows the regression model for customer segmentation (independent variable) and airline competitiveness, and the adjusted R square value shows that, customer segmentation accounts for 68.5% of the difference in airline’s competitiveness.

Table 4.4 Model Summary for Pricing Practices and Segmentation Tools in Airlines

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.845</td>
<td>.714</td>
<td>.685</td>
<td>.20125</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant) Customer Segmentation

4.3.4 Regression Coefficients for Pricing Practices and Segmentation Tools in Airlines

The computed significant factor for pricing practices and segmentation tools (customer
segmentation) was tested to determine its level of significance and relationship with competitiveness in airlines, and the results were as shown in Table 4.5.

### Table 4.5 Regression Coefficients for Airline Pricing Practices and Segmentation Tools

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.775</td>
<td>.546</td>
<td>3.249</td>
<td>.009</td>
</tr>
<tr>
<td>Customer Segmentation</td>
<td>.608</td>
<td>.122</td>
<td>.845</td>
<td>.001</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitiveness in Airlines

The general form of equation that predicts influence of competitiveness in airlines by customer segmentation was: \( Y = 1.775 + 0.608 \text{ Customer Segmentation} \). This equation shows the coefficient for customer segmentation as 0.608, which indicates that, for every increase in customer segmentation, there would be an average increase of 60.8\% in airline competitiveness. The p value of 0.001 shows that customer segmentation was a significant factors in airline competitiveness.

### 4.4 Inventory Management Tools in Revenue Management

#### 4.4.1 Rating of Inventory Management Tools in Revenue Management

The respondents were asked to rate the inventory management tools in revenue management used by airlines to remain competitive in the organization using statements that were provided, using the scale: 1-Strongly Disagree, 2-Disagree, 3-Not Sure, 4-Agree, and 5-Strongly Agree. Their response was as shown in Table 4.6. The mean results of >3.0 shows that the company had effective inventory management tools in terms of revenue management, the standard deviation of <1.5 shows that the difference of responses given was insignificant, indicating that they were almost similar. This meant the results could be applied to the whole organization.
Table 4.6 Rating of Inventory Management Tools in Revenue Management

<table>
<thead>
<tr>
<th>Tool Description</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air France-KLM’s ultimate goal is to find the right mix of passengers willing to</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>16.7</td>
<td>66.7</td>
<td>4.50</td>
<td>.798</td>
</tr>
<tr>
<td>purchase their inventory to maximize profits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM has a booking control policy in place that is used as a guideline</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>4.50</td>
<td>.522</td>
</tr>
<tr>
<td>for allocating seats for optimal allocation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM has deep discounts classes in cases where a single fare class</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>33.3</td>
<td>50</td>
<td>4.33</td>
<td>.778</td>
</tr>
<tr>
<td>exists independently it would be possible to sell a low revenue reservation and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>simultaneously turn away a high revenue passenger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM imposes limits on the number of requests that can be approved for</td>
<td>0</td>
<td>16.7</td>
<td>66.7</td>
<td>16.7</td>
<td>0</td>
<td>3.00</td>
<td>.603</td>
</tr>
<tr>
<td>every class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At Air France-KLM request for a seat is analyzed in real time, based on the</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>33.3</td>
<td>66.7</td>
<td>4.67</td>
<td>.492</td>
</tr>
<tr>
<td>unsold seats and time to departure of the flight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM distributes its revenue from ‘Origin and Destination (O&amp;D) over</td>
<td>0</td>
<td>0</td>
<td>8.3</td>
<td>25</td>
<td>66.7</td>
<td>4.58</td>
<td>.669</td>
</tr>
<tr>
<td>its legs and applies a single leg seat inventory control to the individual legs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>through prorating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM does not discount one way tickets due to imbalance issues found</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>66.7</td>
<td>16.7</td>
<td>4.00</td>
<td>.603</td>
</tr>
<tr>
<td>on its network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In case of an oversell on a flight, Air France-KLM offers its extra passengers</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>75</td>
<td>4.75</td>
<td>.452</td>
</tr>
<tr>
<td>a direct compensation using cash or flight vouchers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To avoid revenue loss, Air France-KLM allows reservations to exceed capacity in</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>83.3</td>
<td>4.83</td>
<td>.389</td>
</tr>
<tr>
<td>anticipation of non-materialization of some bookings which may lead to flight</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cancellations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM prevents revenue from leaking out of the enterprise by employing</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>33.3</td>
<td>50</td>
<td>4.33</td>
<td>.778</td>
</tr>
<tr>
<td>specialized, business rule driven systems that clean bookings within the airline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reservation system</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM distributes its stock through global distribution systems which</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>75</td>
<td>4.75</td>
<td>.452</td>
</tr>
<tr>
<td>allow agents from all over the world to have access to reserve seats on their</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flights</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air France-KLM has a third party tool which offers continuous rigorous audit on</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>4.50</td>
<td>.522</td>
</tr>
<tr>
<td>its reservation systems based on understandable airline business rules</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.6 shows that Air France-KLM’s ultimate goal is to find the right mix of passengers willing to purchase their inventory to maximize profits as shown by 83.3% of the respondents who agreed. Air France-KLM has a booking control policy in place that is used as a guideline for allocating seats for optimal allocation as shown by all the respondents who agreed. Air France-KLM has deep discounts classes in cases where a single fare class exists independently it would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger as shown by 83.3% of the respondents who agreed. Air France-KLM did not impose limits on the number of requests that can be approved for every class as shown by 16.7% of the respondents who agreed, majority of the respondents 66.7% were neutral. At Air France-KLM request for a seat is analyzed in real time, based on the unsold seats and time to departure of the flight as shown by all the respondents who agreed. Air France-KLM distributes its revenue from ‘Origin and Destination (O&D) over its legs and applies a single leg seat inventory control to the individual legs through prorating as shown by 91.7% of the respondents who agreed. Air France-KLM does not discount one way tickets due to imbalance issues found on its network as shown by 83.3% of the respondents who agreed. In case of an oversell on a flight, Air France-KLM offers its extra passengers a direct compensation using cash or flight vouchers as shown by all the respondents who agreed. To avoid revenue loss, Air France-KLM allows reservations to exceed capacity in anticipation of non-materialization of some bookings which may lead to flight cancellations as shown by all the respondents who agreed. Air France-KLM prevents revenue from leaking out of the enterprise by employing specialized, business rule driven systems that clean bookings within the airline reservation system as shown by 83.3% of the respondents who agreed. Air France-KLM distributes its stock through global distribution systems which allow agents from all over the world to have access to reserve seats on their flights as shown by all the respondents who agreed. Air France-KLM has a third party tool which offers continuous rigorous audit on its reservation systems based on understandable airline business rules as shown by all the respondents who agreed.

4.4.2 Correlations for Inventory Management Tools in Revenue Management

A Pearson correlation test was conducted to determine the significance of the inventory management tools in revenue management used by airlines to remain competitive. Inventory
management tools in revenue management were tested using seat inventory and control, nesting, single-leg flights, network seat inventory control, overbooking, and revenue integrity. A p value of <0.05 was the set threshold for all factors that would be considered significant.

Table 4.7 Correlations for Inventory Management Tools in Revenue Management

<table>
<thead>
<tr>
<th></th>
<th>Airline Competitiveness</th>
<th>Seat Inventory &amp; Control</th>
<th>Nesting</th>
<th>Single-Leg Flights</th>
<th>Network Seat Inventory Control</th>
<th>Overbooking</th>
<th>Revenue Integrity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline Competitiveness</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seat Inventory &amp; Control</td>
<td>.709**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nesting</td>
<td>.598*</td>
<td>.083</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.040</td>
<td>.799</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Leg Flights</td>
<td>-.139</td>
<td>-.168</td>
<td>.138</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.666</td>
<td>.603</td>
<td>.668</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Seat Inventory Control</td>
<td>-.580*</td>
<td>-.198</td>
<td>-.734**</td>
<td>-.269</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.048</td>
<td>.538</td>
<td>.007</td>
<td>.398</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overbooking</td>
<td>.010</td>
<td>-.399</td>
<td>.585*</td>
<td>.723**</td>
<td>-.459</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.976</td>
<td>.199</td>
<td>.046</td>
<td>.008</td>
<td>.133</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue Integrity</td>
<td>.406</td>
<td>-.126</td>
<td>.731**</td>
<td>.026</td>
<td>-.406</td>
<td>.588*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>.190</td>
<td>.695</td>
<td>.007</td>
<td>.935</td>
<td>.190</td>
<td>.044</td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed)
** Correlation is significant at the 0.01 level (2-tailed)

Table 4.7 shows that seat inventory and control was a significant factor in airline competitiveness (r=0.709, p<0.05). Nesting was a significant factor in airline competitiveness (r=0.598, p<0.05). Single-leg flights were an insignificant factor in airline competitiveness (r=-0.139, p>0.05). Network seat inventory control was a significant factor
in airline competitiveness ($r=-0.580, p<0.05$). Overbooking was an insignificant factor in airline competitiveness ($r=0.010, p>0.05$). Revenue integrity was an insignificant factor in airline competitiveness ($r=0.406, p>0.05$).

### 4.4.3 Model Summary for Inventory Management Tools in Revenue Management

A regression analysis test was carried out for the significant factors for inventory management tools in revenue management. All insignificant factors were left out of the test. Table 4.8 shows the regression model for all significant factors: seat inventory and control, nesting, and network seat inventory control (independent variables) and competitive advantage, and the adjusted R square value shows that, seat inventory and control, nesting, and network seat inventory control account for 72.7% of the difference in airline’s competitive advantage.

#### Table 4.8 Model Summary for Inventory Management Tools in Revenue Management

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.895</td>
<td>.801</td>
<td>.727</td>
<td>.18749</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant) Seat Inventory & Control, Nesting, and Network Seat Inventory Control

### 4.4.4 Coefficients for Inventory Management Tools in Revenue Management

The computed significant factors for inventory management tools in revenue management (seat inventory and control, nesting, and network seat inventory control) were tested to determine their level of significance and relationship with competitiveness in airlines, and the results were as shown in Table 4.9.

The general form of equation that predicts influence of competitiveness in airlines by seat inventory and control, nesting, and network seat inventory control was: $Y = 1.612 + 0.488$ Seat Inventory and Control + 0.286 Nesting – 0.085 Network Seat Inventory Control. This equation shows the coefficient for seat inventory and control as 0.488, which indicates that, for every increase in seat inventory and control, there would be an average increase of 48.8% in airline competitiveness. The $p$ value of 0.004, shows that seat inventory and control was a
significant factor in airline competitiveness. The coefficient for nesting was 0.286, which indicates that, for every increase in nesting, there would be an average increase of 28.6% in airline competitiveness. The p value of 0.084, shows that nesting was an insignificant factor in airline competitiveness. The coefficient for network seat inventory control was -0.085, which indicates that, for every increase in network seat inventory control, there would be an average decrease of 8.5% in airline competitiveness due to the inverse relationship. The p value of 0.644, shows that network seat inventory control was an insignificant factor in airline competitiveness.

Table 4.9 Coefficients for Inventory Management Tools in Revenue Management

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>1.612</td>
<td>1.415</td>
<td>1.139</td>
<td>.288</td>
</tr>
<tr>
<td>Seat Inventory &amp; Control</td>
<td>.488</td>
<td>.121</td>
<td>.649</td>
<td>4.015</td>
</tr>
<tr>
<td>Nesting</td>
<td>.286</td>
<td>.145</td>
<td>.461</td>
<td>1.976</td>
</tr>
<tr>
<td>Network Seat Inventory Control</td>
<td>-.085</td>
<td>.176</td>
<td>-.114</td>
<td>-.480</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitiveness in Airlines

4.5 Airlines Competitive Positioning and Benchmarking using Revenue Management

4.5.1 Rating of Airlines Competitive Positioning and Benchmarking using Revenue Management

The respondents were asked to rate the airlines competitive positioning and benchmarking using revenue management in the organization using statements that were provided, using the scale: 1-Strongly Disagree, 2-Disagree, 3-Not Sure, 4-Agree, and 5-Strongly Agree. Their response was as shown in Table 4.10. The mean results of >3.0 shows that the company had effective competitive positioning and benchmarking using revenue management, the standard deviation of <1.5 shows that the difference of responses given was insignificant, indicating that they were almost similar. This meant the results could be applied to the whole organization.
Table 4.10 Rating of Airlines Competitive Positioning and Benchmarking

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Air France-KLM wants to increase its revenue, it shifts some demand from high demanded flights to flights with low demand</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>16.7</td>
<td>66.7</td>
<td>4.50</td>
<td>.798</td>
</tr>
<tr>
<td>Air France-KLM predicts carefully the peak seasons and offers discounted tickets for flights out of this period</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>4.50</td>
<td>.522</td>
</tr>
<tr>
<td>Despite available steps available for reducing fuel costs, Air France-KLM still struggles with increased fuel costs</td>
<td>0</td>
<td>0</td>
<td>33.3</td>
<td>50</td>
<td>16.7</td>
<td>3.83</td>
<td>.718</td>
</tr>
<tr>
<td>When Air France-KLM faces high fuel costs, it tries to shift the cost to its customers in the form of fuel surcharges</td>
<td>0</td>
<td>25</td>
<td>41.7</td>
<td>16.7</td>
<td>16.7</td>
<td>3.25</td>
<td>1.055</td>
</tr>
<tr>
<td>Air France-KLM has a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level</td>
<td>0</td>
<td>41.7</td>
<td>8.3</td>
<td>50</td>
<td>0</td>
<td>3.08</td>
<td>.996</td>
</tr>
<tr>
<td>Air France-KLM has an industry wide product range that includes passenger and cargo ferrying</td>
<td>0</td>
<td>16.7</td>
<td>16.7</td>
<td>50</td>
<td>16.7</td>
<td>3.67</td>
<td>.985</td>
</tr>
<tr>
<td>Air France-KLM has a wider portfolio that requires a more complex management and administration system</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>66.7</td>
<td>16.7</td>
<td>4.00</td>
<td>.603</td>
</tr>
<tr>
<td>Air France-KLM studies its customers’ interests to find out which additional features are possible to be reduced to a minimum to be able to compete in a highly competitive market</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td>83.3</td>
<td>4.83</td>
<td>.389</td>
</tr>
</tbody>
</table>
Table 4.10 shows that when Air France-KLM wants to increase its revenue, it shifts some demand from high demanded flights to flights with low demand as shown by 83.3% of the respondents who agreed. Air France-KLM predicts carefully the peak seasons and offers discounted tickets for flights out of this period as shown by all the respondents who agreed. Despite available steps available for reducing fuel costs, Air France-KLM still struggles with increased fuel costs as shown by 66.7% of the respondents who agreed. When Air France-KLM faces high fuel costs, it did not try to shift the cost to its customers in the form of fuel surcharges as shown by 66.7% of the respondents who disagreed. Air France-KLM has a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level as shown by 50% of the respondents who agreed, a significant percentage of 41.7% also disagreed. Air France-KLM has an industry wide product range that includes passenger and cargo ferrying as shown by 66.6% of the respondents who agreed. Air France-KLM has a wider portfolio that requires a more complex management and administration system as shown by 83.3% of the respondents who agreed. Air France-KLM studies its customers’ interests to find out which additional features are possible to be reduced to a minimum to be able to compete in a highly competitive market as shown by all the respondents who agreed.

4.5.2 Correlations for Airlines Competitive Positioning and Benchmarking
A Pearson correlation test was conducted to determine the significance of the airlines competitive positioning and benchmarking using revenue management. Competitive positioning and benchmarking factors were tested using seasonal pricing, fuel costs, low cost carrier model, and generic strategies. A p value of <0.05 was the set threshold for all factors that would be considered significant.

Table 4.11 shows that seasonal pricing was a significant factor in airline competitiveness ($r=0.743$, p<0.01). Fuel cost was an insignificant factor in airline competitiveness ($r=-0.039$, p>0.05). Low cost carrier model was an insignificant factor in airline competitiveness ($r=-0.529$, p>0.05). Generic strategies were an insignificant factor in airline competitiveness ($r=-0.422$, p>0.05). These results imply that fuel cost, low cost carrier, and generic strategies do not affect Air France-KLM’s competitiveness.
Table 4.11 Correlations for Airlines Competitive Positioning and Benchmarking

<table>
<thead>
<tr>
<th></th>
<th>Airline Competitiveness</th>
<th>Seasonal Pricing</th>
<th>Fuel Costs</th>
<th>Low Cost Carrier Model</th>
<th>Generic Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airline Competitiveness</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seasonal Pricing</td>
<td>.743**</td>
<td>.006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel Costs</td>
<td>-.039</td>
<td>-.321</td>
<td>-.215</td>
<td>.905</td>
<td>.309</td>
</tr>
<tr>
<td>Low Cost Carrier Model</td>
<td>-.529</td>
<td>-.749**</td>
<td>.742**</td>
<td>.077</td>
<td>.005</td>
</tr>
<tr>
<td>Generic Strategies</td>
<td>-.422</td>
<td>-.446</td>
<td>.530</td>
<td>.389</td>
<td>.211</td>
</tr>
</tbody>
</table>

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

4.5.3 Model Summary for Airlines Competitive Positioning and Benchmarking

A regression analysis test was carried out for the significant factors for airlines competitive positioning and benchmarking. All insignificant factors were left out of the test. Table 4.12 shows the regression model for seasonal pricing (independent variable) and airline competitiveness, and the adjusted R square value shows that, seasonal pricing accounts for 50.8% of the difference in airline’s competitiveness. These results indicate that seasonal pricing is a significant factor for competitiveness at Air France-KLM Group, which indicates that seasonal pricing is a significant factor in airline competitiveness.

Table 4.12 Model Summary for Airlines Competitive Positioning and Benchmarking

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.743</td>
<td>.552</td>
<td>.508</td>
<td>.25162</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant) Seasonal Pricing
4.5.4 Regression Coefficients for Airlines Competitive Positioning and Benchmarking

The computed significant factor for airlines competitive positioning and benchmarking (seasonal pricing) was tested to determine its level of significance and relationship with competitiveness in airlines, and the results were as shown in Table 4.13.

Table 4.13 Airlines Competitive Positioning and Benchmarking Regression Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.674</td>
<td>.804</td>
<td>.804</td>
<td>2.082</td>
</tr>
<tr>
<td>Seasonal Pricing</td>
<td>.625</td>
<td>.178</td>
<td>.743</td>
<td>3.513</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Competitiveness in Airlines

The general form of equation that predicts influence of competitiveness in airlines by seasonal pricing was: \( Y = 1.674 + 0.625 \) Seasonal Pricing. This equation shows the coefficient for seasonal pricing as 0.625, which indicates that, for every increase in seasonal pricing, there would be an average increase of 62.5% in airline competitiveness. The p value of 0.006, shows that seasonal pricing was a significant factors in airline competitiveness.

4.6 Chapter Summary

The study results and findings were presented using tables and figures, and brief descriptions on the frequencies presented have been offered. Measures of central tendency, in particular mean and measures of dispersion in particular standard deviation have been used to measure the strength and differences in responses received. Inferential statistics that include correlation analysis has used to measure significant factors of the study variables, which were also used to carry out a regression analysis to examine the nature of relationship that exists. The next chapter gives the study discussions, conclusions and recommendations.
CHAPTER FIVE
5.0 DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction
This chapter of the study and it presents the study findings and conclusions. The chapter is divided in the following sections: section 5.1 introduction, section 5.2 summary of findings, section 5.3 discussions, section 5.4 conclusions, and section 5.5 recommendations for improvement and for further studies.

5.2 Summary of Findings
The purpose of this study was to identify the specific revenue management techniques that the Air France-KLM Group applied and their relevance to remain competitive in the airline passenger business within the Kenyan market. Specifically the research sought to: first what are the pricing techniques used by the airline to remain competitive?, second how does the airline use inventory management tools to optimize its capacity?, and lastly how does the airline competitively position and benchmark itself using revenue management?

This study applied a descriptive research design since it was found to be the best to fulfill the objectives of the study. The target population for this study was all the sixteen commercial department local staff who interacted with revenue management on a day to day basis and split between three department’s sales, marketing, and management at Air France-KLM group. The sample frame for this study was obtained from the company’s local Human Resources department. Stratified sampling technique was adopted for the study and simple random sampling was used to draw sub-samples from each stratum. The sample size for the study was 12 respondents. Primary data was used in the study and collected using semi-structured questionnaires. The questionnaires were administered through a drop and pick method. Data was analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics (mean and standard deviation) were used to measure the strength and differences in responses received. Inferential statistics (correlation analysis) was used to measure significant factors of the study variables that were later on used to run a regression analysis to examine the nature of relationship that existed. Data was represented in the form of tables, and figures that indicated the frequency distribution of the data.
The study showed that pricing of airline seats at Air-France-KLM played a crucial role in improving their revenues, and the organization had various pricing strategies which varied from simplistic for developing markets, to highly tuned developed markets to maximize on profits. Air France-KLM used customer behavior to tailor make its pricing strategies and make products for their different passenger segments, and it had been forced to transition from simplistic pricing strategies to a more segmented and solution focused strategy. The organization had specific prices or fares for different fare classes which had been predetermined, and these price cabins did not fluctuate significantly, since they were changed periodically based on competitive factors. The organization also used price discrimination based on developments in technology, commercial, and current business environment, and it used real-time sales data to update the demand distribution and dynamically sets its prices. The company made use of the seat allocation technique as a standard leg-based revenue management method for optimization and setting its booking limits.

The study showed that Air France-KLM’s ultimate goal was to find the right mix of passengers willing to purchase their inventory to maximize profits. The company had a booking control policy in place that was used as a guideline for allocating seats for optimal allocation, and it used deep discounts classes in cases where a single fare class existed independently and would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger. The study showed that Air France-KLM did not impose limits on the number of requests that could be approved for every class, and its request for a seat was analyzed in real time, based on the unsold seats and time to departure of the flight. The company distributed its revenue from ‘Origin and Destination (O&D) over its legs and applied a single leg seat inventory control to the individual legs through prorating. The company did not discount one way tickets due to imbalance issues found on its network, and in cases where there had been an oversell on a flight, the company offered its extra passengers a direct compensation in the form of cash or flight vouchers. To avoid revenue loss, the company allowed reservations to exceed capacity in anticipation of non-materialization of some bookings which would lead to flight cancellations and the company prevented revenue from leaking out of the enterprise by employing specialized, business rule driven systems that cleaned bookings within the airline reservation system. Air France-KLM
distributed its stock through global distribution systems which allowed agents from all over the world to have access to reserve seats on their flights, and it had a third party tool which offered continuous rigorous audits on its reservation systems based on understandable airline business rules.

The study showed that, when Air France-KLM wanted to increase its revenue, it shifted some demand from high demanded flights to flights with low demand. The company predicted carefully the peak seasons and offered discounted tickets for flights out of that period. Despite available steps available for reducing fuel costs, the company still struggled with increased fuel costs, and it did not try to shift the cost to its customers in the form of fuel surcharges. Air France-KLM had a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level. The company had an industry wide product range that included both passenger and cargo ferrying, and it had a wider portfolio that required a more complex management and administration system. Air France-KLM studied its customers’ interests to find out which additional features were possible to be reduced to a minimum to be able to compete in the highly competitive airline market.

5.3 Discussions
5.3.1 Pricing Practices and Segmentation Tools used by Airlines to Remain Competitive

Pricing of airline seats plays a crucial role in improving the revenues of Air France-KLM. These results are similar to Mankowski (2011) who states that, pricing of the seats of an airline play a crucial role in improving the revenues of the airline. The debate is on the optimal pricing strategy to be set that maximizes the revenues collected over the selling horizon. Air France-KLM has various pricing strategies which vary from simplistic for developing markets, to highly tuned developed markets. These results are similar to Taylor and Kimes (2011) who state that, airlines across the world find themselves in different stages of marketplace development where pricing strategies vary from simplistic for developing markets such as Africa, to highly tune such as Europe and North America where fares are more specified to target a unique group of customers.
Air France-KLM uses customer behavior to tailor make its pricing strategies and make products for their different passenger segments. These results are in tandem with Boer and Vincent (2013) who state that, customer behavior is usually the best inputs to tailor make pricing strategies as characteristics of customers when purchasing a ticket is studied. Air France-KLM has been forced to transition from simplistic pricing strategies to a more segmented and solution focused strategy. These results are similar to Taylor and Kimes (2011) who state that, with the entry of low cost carriers who have lower fare levels in many markets airlines have been forced to transition from simplistic pricing strategies to more segmented solutions focused on moving to highly tuned revenue management environments as in Europe and North America where segmentation is highly advanced.

Air France-KLM has specific prices or fares for the different fare classes which have been predetermined. These results are in agreement with Hsu and Lee (2012) who state that, static pricing models is where the specific prices or fares for the different fare classes are predetermined and the seller’s problem is to accept or reject booking requests within the booking horizon. This is the base of pricing till today where pricing is fixed depending on the service being consumed. Air France-KLM has price cabins that do not fluctuate significantly and are periodically changed based on competitive factors. These results are similar to Taylor and Kimes (2011) who state that, price in some cabins do not fluctuate significantly and are periodically changed based on competitive factors such as competitors’ prices.

Air France-KLM utilizes price discrimination based on developments in technology, commercial, and current business environment. These results are in tandem with Boer and Vincent (2013) who state that, dynamic pricing is a form of price discrimination by using developments in technology as well as commercial developments in the current business environment. Air France-KLM uses real-time sales data to update the demand distribution and dynamically sets its prices. These results are in tandem with Dunleavy and Phillips (2009) who states that, airlines are limited to using historical data to determine the customer reservation price, but as the sales moves forward the airline can use the real-time sales data to update the demand distribution and dynamically set prices.
Air France-KLM uses seat allocation technique as a standard leg-based revenue management method for optimization and setting its booking limits. These results are in agreement with McAfee and de Velde (2015) who state that, seat allocation technique used was the standard leg-based revenue management method known as Expected Marginal Seat Revenue (EMSR), even if the focus was the network.

5.3.2 Inventory Management Tools in Revenue Management

Air France-KLM’s ultimate goal is to find the right mix of passengers willing to purchase their inventory to maximize profits. These results are in agreement with Mohan and Dae (2015) who state that, the ultimate goal is to find the right mix of passengers willing to purchase this inventory as their different price levels to maximize profits. Air France-KLM has a booking control policy in place that is used as a guideline for allocating seats for optimal allocation. These results are in agreement with Mohan and Dae (2015) who state that, a booking control policy has to be set in place as a guideline to the tools or individuals allocating the seat to aim for an optimal allocation.

Air France-KLM has deep discounts classes in cases where a single fare class exists independently it would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger. These results are in agreement with Hsu and Lee (2012b) who state that, smaller subsets are available to have a step down discounts to moderate and then deep discounts classes in cases where a single fare class exists independently it would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger.

Air France-KLM did not impose limits on the number of requests that can be approved for every class. These results differ with Arslan et al. (2015) who state that, the inventory control model therefore works by imposing limits on the number of requests that can be approved for every class. These limits are set up by analyzing the total demand for each class, since the arrival order of booking requests are fixed. At Air France-KLM request for a seat is analyzed in real time, based on the unsold seats and time to departure of the flight. These results are in agreement with Mohan and Dae (2015) who state that, the dynamic problem maps each class
demand as a stochastic process. This means each request for a seat is analyzed real time based on the unsold seats and time to departure of the flight.

Air France-KLM distributes its revenue from ‘Origin and Destination (O&D) over its legs and applies a single leg seat inventory control to the individual legs through prorating. These results are in tandem with Arslan et al. (2015) which state that, one way to do this is to distribute the revenue of an O&D over its legs and apply a single leg seat inventory control to the individual legs through an action called prorating. Air France-KLM does not discount one way tickets due to imbalance issues found on its network. These results are similar to Bish et al. (2016) who state that, one way tickets are usually not discounted due to imbalance issues on the network therefore these fare ends up being much more expensive than Return Fares and some passengers who have discovered this end up purchasing the return fare and do not use the return coupon, this is known as coupon thrashing.

In case of an oversell on a flight, Air France-KLM offers its extra passengers a direct compensation using cash or flight vouchers. These results are similar to Bartke et al. (2013) who state that, when there is an oversell on a flight, the extra passengers receive direct compensation from the airline usually in cash or flight vouchers, it also impacts the airline negatively through loss of goodwill from the passengers especially in future choices on repeat purchases. To avoid revenue loss, Air France-KLM allows reservations to exceed capacity in anticipation of non-materialization of some bookings which may lead to flight cancellations. These results are in agreement with Mohan and Dae (2015) who state that, to avoid this revenue loss Airlines commonly allow reservations to exceed capacity in anticipation of non-materialization of some bookings which may lead to some drawbacks such as some passengers being denied the flight service therefore entitled to compensation.

Air France-KLM prevents revenue from leaking out of the enterprise by employing specialized, business rule driven systems that clean bookings within the airline reservation system. These results are similar to Mankowski (2011) who states that, Revenue integrity is the action that is closely related to pricing where airlines prevent revenue from leaking out of the enterprise by employing specialized, business rule driven systems that clean bookings
within the airline reservation system and prevent what is known as ‘Churn’. Air France-KLM distributes its stock through global distribution systems which allow agents from all over the world to have access to reserve seats on their flights. These results are in tandem with Bartke et al. (2013) who state that, most Airlines distribute their stock through global distribution systems which allow agents from all over the world to have access to reserve seats on their flights.

Air France-KLM has a third party tool which offers continuous rigorous audit on its reservation systems based on understandable airline business rules. These results are in tandem with Arslan et al. (2015) which state that, airlines have therefore put in place third party tools which offer continuous rigorous audit on the reservation systems based on understandable business rules that in the end allow the airline to cycle of bad data fed into the revenue management tool.

**5.3.3 Airlines Competitive Positioning and Benchmarking using Revenue Management**

When Air France-KLM wants to increase its revenue, it shifts some demand from high demanded flights to flights with low demand. These results are in agreement with Vissak (2010) who state that, due to capacity constraints during periods with increased demand, if airline wants to increase revenue it must shift some demand from high demanded flights to flights with low demand.

Air France-KLM predicts carefully the peak seasons and offers discounted tickets for flights out of this period. These results are in agreement with Vissak (2010) who state that, carrier should predict carefully the peak seasons and offer discounted tickets for flights out of this period. Passengers with low time costs who originally wanted to fly in the peak season, will move to low demanded flights. Despite available steps available for reducing fuel costs, Air France-KLM still struggles with increased fuel costs. These results are in tandem Smith, Leimkuhler and Darrow (2012) who state that, despite of all steps reducing fuel costs, airlines are still struggling with increased costs.
When Air France-KLM faces high fuel costs, it did not try to shift the cost to its customers in the form of fuel surcharges. These results differ with Smith, Leimkuhler and Darrow (2012) who state that, if carriers have higher fuel costs, they try to shift costs to customers in the form of fuel surcharges. Air France-KLM has a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level. These results are in agreement with Bartke et al. (2013) who state that, problem is deciding when to close the sale of tickets in the one particular price and open sale in the next price level. This requires closer integration of pricing department and RM.

Air France-KLM has an industry wide product range that includes passenger and cargo ferrying. These results are in tandem with Arslan et al. (2015) who states that, an industry wide product range includes all parts of the airline business, from passenger up to cargo. Air France-KLM has a wider portfolio that requires a more complex management and administration system. These results are in agreement with Pak and Piersma (2012) who state that, this distinction is important because the wider a company expands their portfolio the more complex management and administration becomes. That includes also more costs and a more diverse customer base needs to be addressed.

Air France-KLM studies its customers’ interests to find out which additional features are possible to be reduced to a minimum to be able to compete in a highly competitive market. These results are in agreement with Pak and Piersma (2012) who state that, an organization has to study customers’ interests to find out which additional features are possible to be reduced to a minimum to be able to compete in such a highly competitive market.

5.4 Conclusions
5.4.1 Pricing Practices and Segmentation Tools used by Airlines to Remain Competitive
The study concludes that pricing of airline seats at Air-France-KLM played a crucial role in improving their revenues, and the organization had various pricing strategies which varied from simplistic for developing markets, to highly tuned developed markets to maximize on profits. Air France-KLM used customer behavior to tailor make its pricing strategies and make products for their different passenger segments, and it had been forced to transition
from simplistic pricing strategies to a more segmented and solution focused strategy. The organization had specific prices or fares for different fare classes which had been predetermined, and these price cabins did not fluctuate significantly, since they were changed periodically based on competitive factors. The organization also used price discrimination based on developments in technology, commercial, and current business environment, and it used real-time sales data to update the demand distribution and dynamically sets its prices. The company made use of the seat allocation technique as a standard leg-based revenue management method for optimization and setting its booking limits.

5.4.2 Inventory Management Tools in Revenue Management

The study concludes that Air France-KLM’s ultimate goal was to find the right mix of passengers willing to purchase their inventory to maximize profits. The company had a booking control policy in place that was used as a guideline for allocating seats for optimal allocation, and it used deep discounts classes in cases where a single fare class existed independently and would be possible to sell a low revenue reservation and simultaneously turn away a high revenue passenger. The study concludes that Air France-KLM did not impose limits on the number of requests that could be approved for every class, and its request for a seat was analyzed in real time, based on the unsold seats and time to departure of the flight. The company distributed its revenue from ‘Origin and Destination (O&D) over its legs and applied a single leg seat inventory control to the individual legs through prorating. The company did not discount one way tickets due to imbalance issues found on its network, and in cases where there had been an oversell on a flight, the company offered its extra passengers a direct compensation in the form of cash or flight vouchers. To avoid revenue loss, the company allowed reservations to exceed capacity in anticipation of non-materialization of some bookings which would lead to flight cancellations and the company prevented revenue from leaking out of the enterprise by employing specialized, business rule driven systems that cleaned bookings within the airline reservation system. Air France-KLM distributed its stock through global distribution systems which allowed agents from all over the world to have access to reserve seats on their flights, and it had a third party tool which offered continuous rigorous audits on its reservation systems based on understandable airline business rules.
5.4.3 Airlines Competitive Positioning and Benchmarking using Revenue Management
The study concludes that, when Air France-KLM wanted to increase its revenue, it shifted some demand from high demanded flights to flights with low demand. The company predicted carefully the peak seasons and offered discounted tickets for flights out of that period. Despite available steps available for reducing fuel costs, the company still struggled with increased fuel costs, and it did not try to shift the cost to its customers in the form of fuel surcharges. Air France-KLM had a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level. The company had an industry wide product range that included both passenger and cargo ferrying, and it had a wider portfolio that required a more complex management and administration system. Air France-KLM studied its customers’ interests to find out which additional features were possible to be reduced to a minimum to be able to compete in the highly competitive airline market.

5.5 Recommendations
5.5.1 Recommendations for Improvement
5.5.1.1 Pricing Practices and Segmentation Tools used by Airlines to Remain Competitive
The current aviation market is not perfect, and therefore there will always be some barriers, which the airline must be aware of. These barriers can completely discourage the carrier from entry on the market or affect their pricing strategy. The study recommends Air France-KLM to be aware of the type of market they are operating from and make it a priority consideration so as to apply relevant strategies of those particular markets, that is, tackle each market individually.

5.5.1.2 Inventory Management Tools in Revenue Management
The ability to scan the wider economic environment and understand trends is an important consideration when forecasting demand. Thus, the study recommends Air France-KLM to ensure that its revenue management relies on the collection of data and factual evidence to support its strategies and tactical application, to increase both revenue and profit. This would increase their profitability since, revenue management uses the basic principles of supply and demand economics, in a tactical way, to generate incremental revenues.
5.5.1.3 Airlines Competitive Positioning and Benchmarking using Revenue Management

Strong communication between revenue management and planning and scheduling in terms of capacity allocation and joint evaluation of business cases is needed to ensure more robust and consistent strategies, with benefits for both airlines and customers. The study recommends Air France-KLM to carry out joint revenue management and planning decisions when evaluating business cases or during tactical processes which would benefit the airline tremendously, as well as determining more robust inputs for future iterations of the various revenue management and planning processes (fleet planning, scheduling, and revenue optimization).

5.5.2 Recommendations for Further Studies

This study focused on revenue management practices in the international airline industry within Kenya. The study was done within the Air France-KLM Group, and thus, the results of the study were limited to Air France-KLM Group. The study therefore, recommends that more research be conducted on other factors affecting revenue management in the organization to provide a clear guideline. Future researchers may also carry out similar studies on other international carriers to determine the influence of revenue management in the Kenyan aviation industry.
REFERENCES


Date Dear Participant,

My name is Robin Kipkurui Mitei and I am a graduate student at United States International University. For my final project, I am examining Revenue Management and pricing practices in the international airline industry within Kenya: a study of Air France-KLM Group. Because you are a stakeholder and frequently interact with this subject, I am inviting you to participate in this research study by answering a few questions.

The questionnaire will take approximately 15 minutes to complete. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, you will not include your name. Copies of the study will be provided to my United States International University - Africa instructor. If you choose to participate in this study, please answer all questions as honestly as possible. Participation is strictly voluntary and you may refuse to participate at any time.

Thank you for taking the time to assist me in my educational endeavors. The data collected will provide useful information regarding Revenue Management in the airline industry in Kenya. If you require additional information or have questions, please contact me at the number listed below. If you are not satisfied with the manner in which this study is being conducted, you may report (anonymously if you so choose) any complaints to USIU-A, Dean Chandaria school of Business.,Email: info@usiu.ac.ke. Cell 0730116000.14634irobi, Kenya, East Africa

Sincerely,

Robin Kipkurui Mitei
+254720987400
rbetttmitei@gmail.com
APPENDIX II: QUESTIONNAIRE

Kindly fill the questionnaire appropriately.

Part A: Basic Questions

1. What is your gender?
   - Male
   - Female

2. What department do you work in?
   - Marketing
   - Commercial
   - Sales

3. How many years have you worked for Air France-KLM Group?
   - 0-4 years
   - 5-10 years
   - 11-15 years
   - 16 years and more

4. What is your educational specialization?
   - Finance
   - Marketing
   - Engineering
   - Customer Service
   - Reservations
   - Other (Please Specify)
Part B: Pricing Practices and Segmentation Tools used by Airlines to Remain Competitive

5. What is your rating of the following statements with regards to pricing practices and segmentation tools used at Air France-KLM Group. Use the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, and 5 = Strongly Agree.

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Part C: Inventory Management Tools in Revenue Management

6. What is your rating of the following statements with regards to inventory management tools in revenue management used at Air France-KLM Group. Use the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, and 5 = Strongly Agree.

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Part D: Airlines Competitive Positioning and Benchmarking using Revenue Management

7. What is your rating of the following statements with regards to Air France-KLM competitive positioning and benchmarking using revenue management? Use the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, and 5 = Strongly Agree.

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<td>Air France-KLM has a problem in deciding when to close the sale of tickets on one particular price and open sales on the next price level</td>
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<td>Air France-KLM has an industry wide product range that includes passenger and cargo ferrying</td>
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<tr>
<td>Air France-KLM has a wider portfolio that requires a more complex management and administration system</td>
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<tr>
<td>Air France-KLM studies its customers’ interests to find out which additional features are possible to be reduced to a minimum to be able to compete in a highly competitive market</td>
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THANK YOU