

**EFFECT OF INVENTORY MANAGEMENT TECHNIQUES ON OPERATIONAL
PERFORMANCE OF STAR-RATED HOTELS IN NAIROBI CITY, KENYA**

BY

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DECLARATION

I declare that this dissertation is wholly my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this dissertation contains no materials published or written by other people except where due reference is made and the author duly acknowledged.

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ABSTRACT

Inventory management is a key cog in the manufacturing industry, forming a key part of the organizational strategic management decisions. In today's business environment that is highly volatile, uncertain, complex, and ambiguous (VUCA), big savings can be achieved through efficient inventory management. In the service sector, the field of inventory management is gaining more traction because of the concerted efforts to minimize costs, meet customer demand, maximize revenue and achieve strategic fit. The hotel industry is highly volatile and greatly susceptible to external shocks, experiences cyclic demand fluctuations and the hotel products are highly perishable. With this in mind, hotels must adopt different inventory management techniques. The general objective of the study was to establish the effect of inventory management techniques on operational performance. The specific objectives of the study were; to establish the effect of strategic supplier partnership on the operational performance, to determine the effect of vendor managed inventory on the operational performance, to establish the effect of just-in-time practices on the operational performance and to establish the effect of yield management practices on the operational performance of star-rated hotels in Nairobi. The study used quantitative descriptive research design and applied simple random sampling technique to select a sample of 30 hotels rated between 3 and 5 stars. The respondents were 90 senior managers and data was collected by the use of self-administered questionnaires. . Data was analyzed by Statistical Packages for Social Sciences and was presented in frequency tables, pie charts and bar graphs. The study established that inventory management practices helped hotels reduce cost, boost efficiency, improve product quality and boost room yield. Yield management was identified as the most preferred inventory management practice followed by SSP, JIT and VMI. The regression results showed a positive correlation between inventory management practices and operational performance. The study recommends the deepening of strategic relationships with core suppliers, exploring more VMI and JIT arrangements as well as adoption of automated demand tracking and distribution systems. The study recommended further studies on the impact of inventory management techniques in star rated restaurants.

Keywords: Inventory Management, Inventory management techniques and Operational performance

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DEDICATION

I dedicate this dissertation to my late father Nduta Nzeki, my mom Naomi Nduta, my wife Lillian Mwasaru and my son Luka Nduta Jr. I owe this achievement to all of you!

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ACRONYMS AND ABBREVIATIONS

EOQ	Economic Order Quantity
ERP	Enterprise resource planning
FIFO	First In First Out
GDP	Gross domestic product
HRA	Hotel and Restaurant Authority
JIT	Just In Time
LOS	Length of stay
MRO	Maintenance, Repairs and Operating supplies
NWC	Net working capital
POR	Per Occupied Room
REVPAR	Revenue per available room
ROI	Return on Investment
TOC	Theory of Constraints
TP	Thinking Process
YM	Yield Management
VMI	Vendor Managed Inventory
WIP	Work In Progress

OPERATIONAL DEFINITION OF TERMS

Inventory

Is the accumulation of materials, resources (tangible and intangible), customers or information as they flow through processes or networks (Brandon-Jones, Johnston, & Slack, 2013)

Inventory Management techniques

These are the strategies adopted by organizations to ensure that their inventories in the form of raw materials, finished goods, components and work in progress support operations (Barret, 2015).

Operational performance

This refers to the measurable aspects of the outcomes of organizational processes (O'Brien, 2009)

Yield Management

It is a variable pricing strategy used to maximize revenue from perishable and fixed inventory (Shaw, 2019)

CHAPTER ONE:

INTRODUCTION

1.1. Background of the study

Globally, the service sector contributes about 61.2% of the Global real GDP outperforming all other sectors with industry coming a distant second at 27.8% and Agriculture third at 4%. (www.statista, 2021). The global service sector is composed of all sectors of the economy that are focused on the provision of services rather than tangible goods and include tourism, hospitality and communication services. The tourism industry is one of the leading contributors of GDP globally, accounting for billions of US dollars annually according to the Global Tourism Forum. The tourism industry is composed of five key components namely Attractions (destination), Travel, Accommodation (hotels, lodges, motels) conferences and events and tourism services.

In Kenya, the earnings from the tourism industry increased by 3.9% in 2019 from Ksh. 157.4 billion to Ksh163.6 billion greatly outperforming other sectors of the economy (Kenya National Bureau of Statistics, 2020). It is the leading foreign exchange earner in the country followed by diaspora inflows and horticulture (KNBS, 2020). This underlies the pivotal role played by the tourism industry to the Kenyan economy. Statistics from the ministry of tourism indicate that of all international arrivals in 2019, 69.5% came in through the Jomo Kenyatta International Airport (JKIA) with the rest coming in through other international airports and land entry points. This underlies the role of Nairobi as a key transit city, a business and industrial hub in the country. Within this, the all-important global industry is the hospitality sector, which immensely contributes to the cash inflows. The hospitality industry is further classified into hotel/lodging, food and beverage, travel and recreation.

Hotel and by extension the larger hospitality industry is one of the most volatile industries and suffers greatly from cyclic fluctuations in demand and supply (Butler, 2001; Burugu, 2014; Manono & Rotich, 2013). Because of these fluctuations in demand, supply and the high perishability associated with hotel products, this means that the management has to adopt a strategic approach to minimize costs, maximize revenues and operate efficiently. Hotels deal in various inventories, which include; food, beverage, consumables and hotel rooms. By their very nature, the core hotel products (hotel rooms) are highly perishable and therefore need to be carefully managed to maximize revenue yield and minimize costs. Without the adoption of proper inventory management practices, hotels are not be able to maximize their returns, control their costs and be competitive in today's market.

Corporate management involves the process of leading, administering and controlling a company (Smyth, 2019). The performance of any business is closely associated with the success of its corporate management. This is because managers who are a key part of a business's corporate structure are tasked with strategic planning and prudent resource management to meet the company's objectives (Smyth, 2019). The management team of any company is tasked with crafting corporate strategy, setting the vision and mission, defining the values, evaluating the current position and setting objectives and resource deployment (Smyth, 2019). Inventory is one of the core company resources and is an important part of a company's working capital structure (Ndunge, 2013). Inventory management is therefore one of the resource deployment decisions that managers have to make.

The Chartered Institute of Logistics and Transport (UK) defines inventory as the stock of goods or other items owned by a company and held for sale or processing as part of a company's ordinary operations. While inventory in most other sectors is pretty straightforward and can be classed as raw materials, Work-In process inventory (WIP), Maintenance/repairs/Operating inventory (MRO) and finished goods, hotel inventory is

slightly complex as some of the final products are non-storable and non-transportable (Schütze, 2008). Though most people consider the service industry at large to be devoid of inventory and therefore not requiring the adoption of inventory management techniques, the truth is that the service industry products are highly perishable and once not consumed they expire (Harewood, 2006). As such, inventory management in the hotel industry and service industry at large should not just focus on the tangible and visible raw materials (inputs), but also the intangible, highly perishable products. Chauhan & Manoj, (2013) opine that though the service industry does not hold as much inventory as the Manufacturing industry, there is a relatively shorter lead-time, higher perishability and flexibility in dealing with inventory.

1.1.1. Inventory management techniques

Inventory management involves planning, coordinating and controlling activities related to the flow of inventory into, through and out of an organization (Cripps, Datar, Hindi, Horngren & Rajan 2014). Inventory management in most organizations is a key part of a business's delivery unit according to Samanta (2015). The overlap and interlink of inventory management among various operating functions such as supply chain, finance and marketing make it especially important to the operational performance of an organization. Inventory management plays a pivotal role in the overall performance of hotel and hospitality establishments. Hotel managers, therefore, have to think strategically when adopting specific inventory management techniques to ensure that they achieve operational efficiency, cost reduction and revenue maximization. The nature of the hotel products unlike products in other industries is such that hotel managers can adopt flexible pricing methods to achieve greater revenue from the same product. According to Hines (2006), in the manufacturing industry, inventory management aims to achieve two-fold objectives; Minimizing stock holding costs and satisfying customer demand. However, in the hotel industry, inventory management is geared towards achieving a three-pronged objective; reduction of stock

holding costs, the satisfaction of customer demand and revenue maximization through the principle of yield management (YM). Inventory management is therefore as a tool for achieving operational efficiency, (Gordon & Gupte, 2016). According to Onyango (2013), inventory management in organizations is a fundamental pillar that should be treated as an absolute priority.

Inventory management techniques are the strategies that are adopted by organizations to manage their inventories. These are also commonly referred to as inventory management practices. Hotels hold various inventories both tangible and intangible and the inventory management techniques adopted are therefore varied and depend on the nature of the products. In the case of intangible inventories, the focus is to maximize revenue and profitability using yield management practices such as manipulation of pricing, (Miricho, 2013). The inventory management techniques adopted for tangible raw materials, finished products, maintenance and operating supplies (MRO) and work in progress (WIP) are varied. These include; Strategic supplier partnership, first in first out techniques (FIFO), Economic order quantity, Just in Time (JIT), Vendor managed inventory, Activity-based costing technique (ABC), Vendor managed inventory (VMI), radio frequency identification technique (RFID) and enterprise resource planning (Kiboko, 2017).

For the purpose of this research, the inventory management techniques identified by previous studies and that are related to the hotel industry are; Strategic supplier partnerships, Vendor Managed Inventory, Just in time and yield management techniques. By the virtue of the dynamic and dualistic nature of hotel inventories, it is of utmost importance for inventory management to be considered a key cog and therefore be part of hotels' strategic decisions and more so during the Covid-19 pandemic period when hotels are experiencing decreased patronage.

1.1.2. Operational performance of star-rated hotels

Operational performance has been greatly accepted globally as a critical success factor in operations and refers to measurable aspects of the outcomes of an organizational process. An organization's operational performance is usually measured against a set of pre-set standards or performance indicators commonly known as Key Performance Indicators (KPI) such as waste reduction, cycle time, regulatory compliance and environmental responsibility (O'Brien, 2009). Operational performance in turn affects business performance measures such as market share, customer satisfaction or profitability, (Åhlström, Blackmon & Voss, 1997).

Hotels adopt various operational performance measures such as seat turn-over, average daily rate (ADR), revenue per occupied room (RevPAR), return on investment, (ROI), Inventory turnover (IT), per occupied room metrics (POR), average spend per customer, gross profit ratio and cost of sales ratio (Maitra & Srivastava, 2016). Gavin, (1984), opined that operational performance relates to the internal functioning of the organization in terms of increase in productivity, efficiency, reduction of costs and waste.

Operational performance is one of the critical success factors in the highly competitive and dynamic hotel industry. With the rapidly changing business environment and increasing pressure from various hotel stakeholder groups, operational performance has been identified as one of the key pillars in hotel business strategy (Ivankovič, Janković, & Mitrović, 2016). It is therefore in the interest of stakeholders that operational performance is given a priority. Gavin (1984) argued that operational performance relates to the internal functioning of a hotel such as efficiency, cost and waste reduction, room inventory turnover. This closely mirrors the argument by Vangie (2019). Brandon-Jones et al (2013) opined that operations performance is to contribute to businesses through controlling costs, increasing revenue, reducing risks, making investment more effective and growing long-term

capabilities. They further observed that for this to be achieved, organizations need to adopt the principle of triple bottom line i.e. People, planet and profits.

For the management to keep a close watch on this all-important element in the hotel operations, hotels have adopted various performance measures. These include; seat turn-over, average daily rate (ADR), revenue per occupied room (RevPAR), return on investment, (ROI), Inventory turnover (IT), per occupied room metrics (POR), average spend per customer, gross profit ratio and cost of sales ratio (Maitra & Srivastava, 2016). Most hotels have integrated these measures as part of their key performance indicators (KPI). How well an organization performs against these KPIs' is an indication of operational performance (Karanja, Mungania & Okwang'a, 2015)

Kiboko (2017) opined that inventory management practices have a positive correlation to the operational performance of hotels in Mombasa. Gordon & Gupte, (2016) further observed that inventory management is essential in achieving operational efficiency, which is a key ingredient in operational performance. This is because Inventory management in hotels seeks to attain a three-pronged objective; cost reduction, customer service and revenue maximization. (Kiboko, 2017; Miricho, 2013). Studies by Agyemang et al (2020); Kiboko (2017) and Muyundo (2018) demonstrated a positive correlation between inventory management practices and operational performance, while Miricho (2013) concluded that YM, a key room inventory management technique helped in improving the occupancy performance of town hotels in Kenya. There is therefore a demonstrated positive correlation between inventory management techniques and the operational performance of hotels

1.1.3. Star-Rated Hotels in Nairobi

A hotel is an establishment where accommodation is supplied on a short-term basis or is available for supply separately or jointly with or without food, beverage, or other products in

exchange for money (Hotels & Restaurants Act, 2009). The hotel industry is one of the components of the wider service industry.

Globally nations have various rating schemes for their hotels, Restaurants, Cafes. This is done by an authorized independent rating agency and hospitality establishments have to achieve a given criterion for them to be rated. In the UK, the tourism boards in England, Wales, Scotland and Northern Ireland are responsible for the rating of tourism establishments. Likewise in Europe, Hotels, Restaurants and Cafes (HORTEC), which is an association of all member states, is tasked with regulating and grading all hospitality establishments.

In Kenya, all establishments that offer accommodation for rent, or hire on a short-term basis have to be registered and licensed by the Hotels and Restaurants authority (HRA) under the Tourism Regulatory Authority (TRA). TRA undertakes periodic classification of hotels and all tourism-regulated activities with the sole aim of ensuring a high standard and quality of services. TRA classifies hotels according to their location, the amenities on offer, number of rooms, quality of service and size of the hotel Etc.

TRA has adopted a star rating approach used globally for all hotels in Kenya with the highest rating being 5 stars and the lowest rating being 1 star. This rating does not include self-catering establishments since they fall under the category of cottages and apartments.

Nairobi city is considered an important business hub in the region, a gateway and transit city into the rest of Kenya. The city also prides itself as Africa's top safari city and the world's only city that hosts a national park, (KTB). Nairobi boasts itself as the region's top conferencing destination having hosted various conferences of international repute in the recent past. To serve this ever-growing conferencing market, there has been a steady growth of hotel numbers in the city. According to TRA, the greater Nairobi region, which extends up

to Machakos County, has sixty (60) star-rated hotels. These hotels range from 5star to 1 star and all meet the requirements set by the TRA.

The hotel industry in Kenya experiences fluctuation in demand for hotel products a phenomenon known globally as hotel seasonality. Manono & Rotich(2013) and Burugu (2014) observed that Kenya experiences fluctuation in demand for hotel products at different times of the year recording between 20% to 30% occupancy during the low season and 91% to 100% occupancy during the peak season (Burugu,2014).

Nairobi city is the largest entry point to Kenya at a high of 1.427 billion international visitors in 2019 (KNBS, 2020). A study on the effect of inventory management techniques on operational performance is particularly important because; Nairobi city is prone to cyclic demand fluctuations (Manono & Rotich, 2013), travel-related external shocks. Nairobi also has the highest number of 3 to 5 star rated hotels that hold a substantially higher number of room inventory and contribute the highest number of total bed nights nationally (KNBS, 2020).

1.2. Statement of the Problem

One of the standout characteristics of the hotel industry is the cyclic fluctuation of demand for hotel products. This is not limited to hotels but rather cuts across the entire tourism spectrum as observed by several scholars (Burugu, 2014; Ortega, 2016; Manono & Rotich, 2013). Locally hotels have been observed to experience fluctuation of demand for their products where they record between 20% to 30% occupancy during low seasons and 91% to 100% occupancy during peak seasons (Burugu, 2014). This fluctuation in demand results in the underutilization or overutilization of natural, physical, capital and human resources (Ortega, 2016)

Due to the volatile, uncertain, complex and ambiguous nature of the business environment today, companies have shifted their focus to net working capital (NWC) in an

attempt to have a healthy cash flow. Inventory is one of the three ingredients of NWC besides account receivables and payables (Yigit, 2020). Inventory occupies the most important position in most company's working capital structure and although companies must hold inventory to satisfy customers and avoid lost sales, they need to apply the right inventory management techniques to mitigate risks involved (Coyle & Bardi, 2003; Ndunge, 2013). This is key for hotels whose core inventory has high perishability (Kimes & McGuire, 2001), is time-dependent and therefore cannot be sold on a future date. Although inventory management has previously been identified as a problem area needing top priority (Koumanakos, 2008), most organizations have been observed to ignore the potential benefits of proper inventory management and are not able to balance between customer service and inventory costs (Eshun, 2014). In 2020, the Central Bank of Kenya (CBK) reported that several international flagship hotels in Nairobi such as Radisson blue, Intercontinental and Norfolk had closed shop due to inability to generate revenues from their core inventory (Business daily, 2020, Cytonn report, 2020). The study on inventory management techniques in star-rated hotels in Nairobi was therefore premised on these findings.

There have been several studies by different scholars on inventory management techniques. Globally, Agyemang, Ankomah, Fiati, Koku & Opuku, (2020) concluded that inventory management practices especially strategic supplier partnerships play a tremendous role in improving the performance levels of developing economies.

Locally, Kiboko (2017) noted that in 2016 hotels in Mombasa were noted to have lost their premium rating and competitive edge and consequently turned to different inventory management techniques to counter these challenges and regain their competitive edge. FIFO was observed to be the most used inventory management among hotels in Mombasa. Muyundo (2018) concluded that inventory management plays a key role in the operational performance of cement manufacturing firms in Kenya with companies observed to use Just in

Time (JIT) to minimize holding costs, reduce stock levels, and boost efficiency. Ndunge (2013) examined the relationship between inventory management and a firm's performance: the case of the edible oil industry in Kenya. Miricho (2013) studied Yield Management strategies in Kenya's town hotels specifically focusing on room-stock Management

It is therefore evident that previous studies on inventory management techniques and operational performance have been done. This study therefore sought to answer the following research question; what is the effect of inventory management techniques on the operational performance of star-rated hotels in Nairobi city?

1.3. Objectives of the study

This section states in detail what the study sought to achieve and provides a broad statement of the general objective as well as the specific objectives that the researcher sought to accomplish.

1.3.1. General Objective of the study

In order to conclusively cover the topical area, the general objective of this study was to establish the effect of inventory management techniques on the operational performance of star-rated hotels in Nairobi.

1.3.2. Specific Objectives of the study

The study was guided by the below specific objectives

- I. To establish the effect of strategic supplier partnerships on the operational performance of star-rated hotels in Nairobi city
- II. To determine the effect of vendor managed inventory on the operational performance of star-rated hotels in Nairobi
- III. To establish the effect of just-in-time practices on the operational performance of star-rated hotels in Nairobi

- IV. To establish the effect of yield management practices on the operational performance of star-rated hotels in Nairobi

1.4. Research questions

The study endeavored to answer the following questions that relate to effect of inventory management techniques on operational performance.

- I. What is the effect of strategic supplier partnership on the operational performance of star-rated hotels in Nairobi city?
- II. What is the effect of vendor-managed inventory on the operational performance of star-rated hotels in Nairobi?
- III. What is the effect of just-in-time practices on the operational performance of star-rated hotels in Nairobi?
- IV. What is the effect of yield management practices on the operational performance of star-rated hotels in Nairobi?

1.5. Justification and significance of the study

Inventory management as a field is one of the heavily studied topics in production, operations and supply chain management. Several studies (Agyemang et al, 2020; Muyundo, 2018; Ndunge, 2013; Onyango, 2013) were previously conducted on inventory management. However, the bulk of these studies heavily focused on the manufacturing and production industries with limited research on the service industry whose core inventory is highly perishable and intangible.

The core hotel products, which are key elements of hotel inventory, are rooms, food and beverage. Hotel rooms contribute 60% to 80% of total revenue while food and beverage contribute between 10% and 20%, www.hotelexecutive.com (2013). The two are therefore considered the core hotel products. The reason for focusing on 3 to 5 star rated hotels was

that as a statutory requirement, these hotel categories are required to offer a given level of service and therefore hold higher levels of inventory as compared to other star categories.

Studies done by Kiboko (2017) and Abuya & Shale (2018) on inventory management practices in hotels did not cover room inventory and only focused on tangible, storable and movable inventories. I.e. Food, beverage and operating supplies. This study therefore sought to fill the knowledge gap that currently exists on inventory management techniques in hotels in Nairobi by extensively covering the intangible, highly perishable, immovable and non-storable inventory (rooms) and tangible, storable and movable inventory (Food, beverage and operating supplies). The research sought to add a complimentary empirical perspective to the existing literature on inventory management techniques. The researcher envisaged that the study would be of value to the below listed stakeholders:

1.5.1. Researchers

To researchers, this study will act as a literature base for future studies on inventory management. The study will open a new frontier into the holistic study of inventory management techniques in Kenya.

1.5.2. Hotel industry

This study will be of significant value to; general, operations and supply chain managers in the hotel industry as it highlights the effects of adopting proper inventory techniques on the operational performance of hotels. This will inform their strategic decisions.

1.5.3. Policy makers

This research will inform policy makers when creating tax regimes for the hotel industry in Kenya. This is essentially so especially in VMI arrangement where ownership of goods remains with supplier until they are sold.

1.6. Scope of the study

This study analyzed data collected from 30 star rated hotels in Nairobi city. The 30 star rated hotels were selected using simple random sampling. Senior managers such as General Managers/Operations Managers, Finance managers and Procurement managers gave their views on the effect of inventory management techniques on operational performance amongst star rated hotels in Nairobi.

1.7 Limitations of the Study

The study encountered the following limitation;

1. Organization information confidentiality. To counter this challenge, the researcher acquired an introduction letter from KCA University clarifying the academic purpose of the study.
2. Covid-19 restrictions. Due to the person-to-person restrictions adopted by hotels in an effort to protect their employees, managers were hesitant to fill in the manual printed questionnaires. To address this, e-questionnaire in the form of Google forms was send to respondents and follow up done via phone.

1.8 Assumptions of the Study

The researcher assumed that all senior managers selected were familiar with the inventory management techniques and would therefore give helpful insights into the usage and effects of inventory management techniques in hotels.

1.9 Research Ethics

Before proceeding with data collection, the researcher sought permission to carry out the study from the university. The researcher also sought permission from respondents by way of email and attached thereof the questionnaire in Google forms format. On the front matter of the e-questionnaire, the researcher provided sufficient information on the purpose of study

and assurance of anonymity and confidentiality. All email contacts captured when filling online responses were deleted during data cleaning. The study findings shall be availed to the relevant authority and to those participants who may wish to know the findings and inferences.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter reviewed the literature on inventory management and operational performance from different scholarly sources, identified a theoretical framework, identified and briefly discussed both the independent and dependent variables. The chapter also discussed and linked every theory to a specific variable under study.

2.2. Theoretical literature review

Several theories have explained the relationship between inventory management and organizational performance and especially in the manufacturing sector. This study was anchored on the strategic choice theory, principal-agent theory, lean theory and the Yield Management theory (YM) in trying to explain the various variables.

2.2.1. Strategic Choice theory

This theory supports strategic supplier partnerships as discussed in the study and is the foundation on which past and current studies on strategic supplier partnership were built on. The strategic choice theory was developed and advanced by John Child in 1970's during which period the understanding of organizations was deterministic and functional in nature (Herney, Johnstone & Wilkinson, 2016). In their analysis of the strategic choice theory, Herney et al (2016) asserted that,

“Essentially, varying environmental conditions (e.g., whether an environment was dynamic or static) and/or organizational contingencies (e.g., whether the focus was on batch or mass manufacturing) were seen to automatically mandate a specific type of organizational response (P.414) ”

Strategic choice was therefore thought of as a way of bringing both managerial agency and decision making into play and putting them at the fulcrum of organizational performance unlike the previous theories. Child (1997) defines strategic choice as the process by which power holders within an organization decide upon a strategic course of action . Child (1972)

further build a construct where power holders within an organization were empowered to decide on a course of strategic action in all their spheres of work. This was at the very core of the strategic choice theory and a key determinant of organizational performance.

The strategic choice theory is one among several management theories that explain the interplay between organizations and their environment. The strategic choice theory adopts the perspective of managerial agency and ensures the alignment of strategies on all strategic levels, whether corporate, business or functional (Rohof, 2013). The element of choice in the relationship between strategy and structure was firstly acknowledged in the early literature on strategic choice in the 1960s where Chandler (1962) stated that as much as enterprises were separate legal entities, their health and future depended on the individuals who ran these enterprises. Rohof (2013) emphasized on the role of the involvement of organizational actors i.e. corporate, business and functional managers in decision making.

Kiboko (2017) opined that some of the strategic decisions that managers have to make are inventory investment decisions, which have a direct impact on organizational performance. This theory was relevant to the study in that it implored upon managers to think strategically when making inventory management decisions and more-so on inventory management techniques. This is essential in minimizing inventory holding cost, ensuring customer satisfaction, improving efficiency and revenue maximization.

2.2.2. Principal-Agent theory

Vendor managed inventory as discussed in this study was underpinned by the principal-agent theory. According to the chartered institute of procurement and supply (CIPS), In VMI supply agreements, upstream agents in the supply chain take charge of downstream agents. Keeping inventories for goods at all levels of production was observed as an absolute necessity for businesses (Zappone, 2014). These goods are kept on hand for either resale or further processing (Zappone, 2014). In order to develop an effective inventory policy that

minimizes costs associated with inventory and at the same time ensures un-interrupted service delivery, firms use both deterministic and stochastic models (Zappone, 2014).

Once companies have used both deterministic and stochastic models and have analyzed all the supply chain related costs as well as the impact of customer satisfaction, they have information asymmetry that could be used to their advantage as argued by Akerlof (1970) in his article; Market for 'Lemons': Quality, Uncertainty and the Market Mechanism. The principal-agent theory or agency theory as is commonly called was therefore an offshoot of the asymmetric information game theory (Yin, 2012). According to the principal-agent theory, there has to be mutual trust between entities in the supply chain and one party entrusts his assets to a third party to manage in line with conditions of a pre-agreed contract (Zhao, 2019). Principal-agent theory was therefore put forward as a way of designing benefit and risk sharing arrangement among enterprises in the supply chain.

In the 21st century, supply chain management effective tool applied to increase organizational competitiveness through quality improvement, speedy delivery of goods and services, flexibility, cost reduction and asset management (Haseeb, Iqbal-Hussain, Jermisittiparsert, & Ślusarczyk, 2019). At the core of the principal-agency relationship is the need to minimize costs and spread risks in the supply chain.

Lagana & Maio (2020) in the article 'the effectiveness of Vendor Managed Inventory in the last-mile delivery: an industrial application' argued that VMI, which applies the principal-agent theory was one of the key paradigms in the integration of supply chains.

2.2.3. The Lean theory

This theory was the supporting theory for just in time variable in this study. Lean concept commonly known as lean manufacturing or lean production originated from the Toyota production system and was exclusively adopted in the manufacturing industry. John Krafcik coined the word Lean in 1988 in the article "the triumph of the lean production system.

Krafcik (1988) observed that lean manufacturing firms have a higher level of productivity and quality and that the level of plant technology seemed to have little impact on operational performance. Jones & Womack (2003) described lean as ‘a way to do more and more with less and less’ and devised the five key principles of lean production namely; Value, value stream, flow, pull and perfection. In recent years, the lean concept has seen its applicability and usage expand to other non-manufacturing industries. Damian, Holzner, Matt & Rauch (2016) covered the application of lean management methods in the hotel sector and concluded that the application of these methods led to the optimization of productivity, cost reduction, increased efficiency and increased quality of customer service. Damian et al (2016) further concluded that warehouses in hotel sector could be optimized by the use of barcoding and ABC analysis.

In trying to explain the working of the lean theory, Wood (2004), made the below assertion;

“Lean approach is not about zero inventories or a collection of tools applied mechanically to problems nor is it a Japanese philosophy to be applied indiscriminately. It is a way of giving people at all levels of an organization the skills and a shared means of thinking to systematically drive out waste by designing better ways of working, improving connections and easing flows within supply chains”(Pg. 8).

This underlines the need for strategic thinking to the entire lean concept application in hotels and especially in inventory management. Eroglu & Hofer (2011) observed that inventory leanness of an organization has a positive impact on profitability. Eroglu & Hofer (2011) also conducted an analysis to determine the nature of inventory-Performance relationship and concluded that inventory leanness leads to improved performance and that there is an optimum level of inventory leanness beyond which firm performance begun to deteriorate. The lean theory is therefore relevant to inventory management techniques whose overriding objective is to control cost, achieve efficiency and ensure continuity in customer service.

2.2.4. The Yield Management theory

The yield management theory underpinned yield management, which is a popular practice among industries in the service sector such as Airline and Hotels who sell highly perishable, time-limited resources. The Yield Management theory can be traced to the deregulation in the airline industry. First applied in 1985 by the American Airlines in an effort to compete with low cost carrier, Peoples express Airline; Yield management has grown to become part of mainstream business theory and practice in the last thirty five years. Selmi & Dornier (2011) defined it as a way of managing demand and supply by simultaneously acting on the available capacity and prices.

Yield management theory has developed into one of the unique room inventory management practice, used by hotels to address the problem of excess supply and excess demand by the use of various Yield Management ingredients (Miricho, 2013). Though this theory traces its roots to the decentralization of the airline industry, it has been widely adopted by industries that have a fixed capacity and deal in highly perishable products. These industries optimize revenues through the manipulation of selling price and the length of stay (Kimes & Wagner, 2001). One of the reasons behind the growth of this concept in the hotel industry was the growth of the electronic distribution channels over time. Though this brought its complexities, it has proved to be a blessing in disguise to the yield management practices (Frew & O'Connor, 2002).

2.3. Empirical review

This section reviewed the various journals, books and articles done on the inventory management techniques i.e. SSP, VMI, JIT, YM, and their observed effect on the operational performance.

2.3.1. Strategic supplier partnership and operational performance

Today's market place is so competitive that different industries have had to adopt different approaches to remain competitive or gain an edge in the market place. Different companies especially in the manufacturing sector have adopted different strategic approaches, aimed at reducing costs and waste (Binalla, 2019). This in effect has led to increased efficiency and the improvement of company products and services (Binalla, 2019). Competition has been identified as one of the key drivers of innovation and increased product and service quality (Binalla, 2019)

Bayraktar, Tatoglu & Zaim (2007) described supply chain management (SCM) as a management approach that entails a set of strategies, approaches and practices that adopted by organizations in an effort to seamlessly integrate suppliers, manufacturers, distributors and customers into a cohesive unit with mutual benefits for all the firms or individuals involved. The overriding goal of Supply chain management is therefore to create a value chain network that consists of functional entities that work together to provide resources, information and goods and efficiently manage suppliers (Tsai, 2007). SCM therefore does not only aim at higher profits but also achieving increased customer satisfaction, reduced costs and greater return on investment (Binalla, 2019)

One of the key dimensions of SCM is supplier relationships management (SRM) which entails establishing strategic supplier partnerships (SSP) with all organization's suppliers. Tsai (2007) described SSP as a mediator in the relationship between lean supply chain and a responsive supply chain. SSP therefore seeks to strike a balance between the leanness of supply chain operations and the response to customer demand. Several Studies (Qrunfleh & Tarafdar, 2013; Omoush, 2020) established that the study of strategic supplier

partnership is increasing in scope and that it has a positive correlation with the performance of supply chains.

Inventory across all sectors has increased in complexity and is highly susceptible to global supply uncertainties (Agyemang et al, 2020). This requires companies to strategically partner with their key suppliers to avoid inventory stock outs, production delays customer dissatisfaction and resource productivity. Various past Studies (Iravo & Mukopi, 2015; Khan & Siddiqui, 2018; Omoush, 2020; Qrunfleh & Tarafdar, 2013) concluded that creating a strong strategic relationship with supplier at all levels helps in improving product quality, product delivery speeds, minimizing costs, as well as gaining competitive advantage. A study by Agus & Hassan (2008) concluded that;

“SSP determinant namely; Continuous improvement programs with suppliers, joint problem solving with suppliers, planning and goal setting with suppliers and emphasis on high quality suppliers appear to be of primary importance and exhibit direct impact on product quality performance and ultimately business performance”(Pg. 129)

According to the study by Binalla (2019) strategic supplier partnership is a source of competitive advantage among construction companies in the Philippines, companies were observed to prefer having long standing relationships with key suppliers and in most instances only retained a database of a few, key and highly dependable suppliers to support their operations. However, Binalla (2019) also observed that the understanding of SSP was in the context of the traditional buyer-supplier behavior. He therefore recommended the implementation of strategies in supply chain networks that would improve supplier relationships. Kay (2014) further argued that all the five forces as identified by Porter’s competitive strategy could change the perspective of the buyer- supplier relationship into a value enhancing partnership where both parties mutually benefit. The implementation of SSP therefore leads to competitive advantage, improved customer service, reduced costs, product innovation and speed delivery of products (Bayraktar, Tatoglu & Zaim, 2007; Binalla, 2019)

Khan & Siddiqui (2018) in the study; ‘Information sharing and strategic supplier partnership in supply chain management’, analyzed the effect of SSP on operation performance where they observed that strategic supplier partnership had a positive effect on operational performance through improving quality, operational efficiency, minimizing production costs without necessarily affecting customer experience and satisfaction. The study by Khan & Siddiqui (2018) was conducted among pharmaceutical companies in Pakistan and recommended further studies on SSP for broader generalization of research findings.

According to Agyemang et al (2020), in their study on inventory management practices and the operational performance of manufacturing firms in Ghana, SSP was the most preferred inventory management practice among manufacturing firms and was observed to considerably contribute to the operational performance of manufacturing firms. More specifically, it was established that unit increase in the usage of SSP had a corresponding unit increase in operational performance levels. The findings by Agyemang et al, (2020) mirrored the findings by Binalla (2019) on the growing importance and application of SSP. Agyemang et al, (2020) who used descriptive research were therefore able to establish a cause-effect relationship between SSP and operational performance in manufacturing firms This study by Agyemang et al, (2020) recommended that firms should invest in SSP in order to properly manage their inventories through long-term relationships premised on mutual information sharing. Based on these previous studies, this study therefore hypothesized that strategic supplier partnership had a significant effect on operational performance.

2.3.2. Vendor Managed Inventory (VMI) and operational performance

According to the chartered institute of purchasing and supply (CIPS, 2020) vendor managed inventory is an inventory management practice where suppliers take charge of all inventory related decisions on behalf of the retailer or seller. This involves establishing

strategic alliances with the key suppliers, deployment of an integrated technological platform and network to enhance information sharing (Dong, Dresner & Yao, 2012). This therefore makes inventory a responsibility of the downstream agents (suppliers). In VMI, an organization therefore relinquishes the supply decisions such as re-stocking, shipping modes, monitoring of par levels, order quantities as well as the financial responsibility of its inventories to suppliers (Kemunto, 2014).

VMI as an inventory management technique was been observed to reduce cost, overstocking, reduce stock expiries and reduce the bullwhip effect (Mousavi, Niaki, & Sadeghi, 2016). This inventory management technique applies principles from principal-agent theory to build a mutually beneficial relationship for both the principal and the agent (Zhao, 2019). Under the VMI arrangement, suppliers electronically receive actual real-time data of the firm's inventory, sales, pending orders and demand forecast through a shared electronic interchange and makes arrangements to replenish inventories whose counts are below the agreed par levels. Firms do not pay for replenishments by the supplier under the VMI arrangement until such a time when the goods have been sold (Mulumba, 2016). This arrangement is premised on a contract between the supplier and the firm that clearly specifies inventory constraints and replenishment quantities.

The greatest supply chain constraints facing firms in sourcing for inventories is the long lead-time and demand unpredictability especially when dealing with an offshore supplier. On the other hand, from the firm's perspective the challenges involved are the unpredictability in demand and high inventory carrying costs (Krishnadevarajan, Lawrence & Rajagopalan, 2007). Through VMI, firms identify inventory constraints and enter into agreements with suppliers as a focusing strategy to make good these inventory constraints. Implementation of the VMI inventory management technique therefore enables organizations and their key suppliers to close this supply gap, ensure lean inventory, reduce stock-outs and

ensure continuity in customer service (Mulumba, 2016). Studies on the application of VMI in the manufacturing sector have all proved that it helps in the reduction of cost by between 12% and 15% (Wu, Yuan & Zhao, 2016). VMI is further hailed for helping reduce the inventory levels by changing production style from make-to-stock to make-to-order (Holmstrom, Kaipia & Tanskanen, 2002). However, all these benefits are attributable to the manufacturing sector where firms engage in the production of tangible goods rather than services.

According to Mulumba (2016) in the study: the inventory management practices and financial performance of manufacturing firms in Kenya, the general increase in competitiveness and the desire for organizations to gain competitive advantage over their competitors has pushed firms to be innovative and look for ways to reduce inventory related costs. This has pushed managers to make strategic choices and seek partnerships and alliances that help them achieve a strategic fit. As highlighted by the theory of constraints (TOC), Firms have been observed to suffer predominantly from constraints and most notably inventory constraints such as lengthy lead times, unfulfilled orders, stock outs and customer dissatisfaction (Goldratt, 2004). In order to overcome these constraints, firms have to adopt the most appropriate inventory management technique that helps to achieve a strategic fit. Identification of inventory related constraints will be a key determinant on the kind of response adopted by organizations through the Thinking process (TC) and focusing principle (Goldratt, 1990). According to Mulumba (2016), VMI was one of the observed innovations and focusing strategies adopted by firms to minimize inventory costs. Mulumba (2016) concluded that VMI enabled firms to reduce or exclude inventory, obviate stock outs and minimize expense and recommended further studies in the application of inventory management practices in other industries.

According to a study by Kemunto (2014), on supply chain integrations practices and supply chain performance conducted on multinational firms in Kenya, firms were observed to have an improved performance because of VMI adoption. Multinational firms had relationships with their suppliers, which enabled them to have access to their inventory data and undertake collaborative replenishment of inventory. The study recommended the adoption of supply chain integration practices among multinational firms.

In the hotel industry, a study by Kiboko (2017) on inventory management practices and the operational performance established that VMI was used largely by hotels in Mombasa. However, Kiboko (2017) noted that implementation of inventory management practices was greatly hindered by lack appropriate technology and lack of requisite training among supply chain staff. Kiboko (2017) recommended a comparative study on inventory management practices among the various hotel star groupings. Based on these previous studies, the researcher hypothesized that vendor managed inventory affects the operational performance of star rated hotels

2.3.3. Just in Time Production (JIT) and operational performance

Just in Time Production also commonly known as lean production, is production and inventory management technique that applies the demand-pull manufacturing approach. (Cripps et al, 2014). JIT originated in Japan where it was successfully implemented by Toyota production and later adopted by other manufacturing firms to great success (Krafcik, 1988). It focuses on minimizing flow time and costs between production and distribution of materials. In the JIT production system, a manufacturing or production activity in a particular workstation is usually prompted by the need of that workstations output in the next workstation (Cripps et al, 2014). This means that the production in triggered by demand in the next workstation. The use of JIT production system has been observed to; meet customer demand in a timely manner, deliver high quality and freshly produced products and

significantly minimize costs (Cripps et al, 2014). According to Brandon-Jones et al (2013) the overriding principle of JIT is to make inventory available at the right quantity, right price and at the right time

The relationship between JIT and operational performance has previously been proven. Green, sale, Inman & Whitten (2011) observed a positive correlation between the principles of JIT and the operational performance of firms. Although JIT production is beneficial as a stand-alone practice, scholars have indicated that the application of JIT needs to cut across the entire supply chain spectrum in order for all benefits to be fully realized.

In their study: 'the Effects of Just-In-Time Production Systems from Cost and Management Accounting Perspective', Dalci & Tanis (2006) observed that JIT is key in eliminating non-value adding processes in the entire supply chain such as transportation, storage, machine start-up and inspections. By eliminating these processes and activities, firms are able to realize huge cost savings in both the short and long run. The core focus of JIT according to Dalci & Tanis (2006) is to reduce the inventories for work in progress and finished goods, consequently reduce lead-time, and improve product quality. This is possible through the demand-pull approach where it is the customer demand that triggers production at the different levels of production. Dalci & Tanis (2006) opined that companies that look to be competitive through maximization of customer satisfaction should look to adopt JIT.

The application of JIT as an inventory management technique has been studied both locally and globally. However, the bulk of these studies have been on the manufacturing, retail and production sectors with very limited studies available on the application of JIT in hotels. Agyemang et al, 2020; Cripps et al, 2014; Kiboko, 2017; Mulumba, 2016 & Muyundo, 2018 are some of the studies that have been undertaken on JIT practices in the various industries. All these studies highlighted the successful application of JIT principles in

production and inventory management. Bates, 2009; Cripps et al, 2014 & Kiboko, 2017 noted that JIT led to improved operational performance of hotels and restaurants. JIT was observed to help organizations achieve desired inventory leanness when integrated with other inventory management techniques such as strategic supplier management vendor managed inventory using Information technology (Agyemang et al, 2020; Cripps et al 2014)

Kamakia (2015) noted that although the end game of JIT is to reduce inventory in the form of work in progress and finished goods leading to reduced costs and competitive advantage over competitors, companies should never lose sight of their unique industry characteristics and should figure out how to apply the JIT principles to gain the much-needed competitive advantage. Kamakia (2015) further noted that the bottom line is not to totally wipe out inventory but rather have the right amounts of inventory at all levels that are necessary to keep production moving. This therefore calls for strategic approach in the application of the lean principles of JIT production. Kamakia (2015) noted that the implementation of inventory management techniques helped improve supply chain performance. Kamaki (2015) recommended the development of policy framework by petroleum marketing firms to help in faster implementation of inventory management practices.

Darwish (2018) observed that JIT practices such as JIT purchasing, JIT inventory operations and JIT selling had a positive correlation to competitive advantage of restaurants and thus their operational performance. The study by Darwish (2018) titled ‘the effect of Total Just in Time on Competitive Advantage’ recommended the use of total JIT technique in reducing inventory, reducing waste and improving customer service in fast food restaurants in Jordan. The study further recommended further studies on JIT in other countries for broader generalization. Bates (2009) suggested that firms might have to undergo process re-

engineering in order to fully comply with the requirements of JIT, which he described as demanding but achievable

Locally Kiboko (2017) studied the impact of inventory management techniques on the operational performance of hotels in Mombasa and showed a positive correlation between JIT and operational performance and recommended further training of staff on the various inventory management techniques for ease of implementation by hotels in Mombasa. Kiboko (2017) argued that this will help minimize costs and enhance efficiency. From the above discussed literature, the researcher hypothesized that Just in Time affects operational performance of star rated hotels.

2.3.4. Yield management techniques and operational performance

The hospitality concept of Yield management also referred in some quotas as revenue management (RM), has in recent years extensively used in the hospitality industries. It involves the manipulation of both room rate and hotel space-booking policies to maximize revenue. According to Hyton & Ingold (1997), Yield management is an old hospitality management practice, which is traceable way back to the Biblical birth of Jesus in Bethlehem of Judea. The birth of Baby Jesus in a manger could have been as a result of a Yield management type practice. The hotel owners having heard the rumor that three gift-carrying wise men were visiting Bethlehem could have made a strategic decision to deny Mary and Joseph accommodation in the hope that better business was coming. Whether true or not, yield management has been a practice in the hospitality sector for a long period (Miricho, 2013). It usages currently stretches across sectors in the service industry such as hotels, airlines and car rental.

Yield management is particularly applicable where the inventory is highly perishable and the fixed costs are higher that the Variable costs (Murphy & O'Connor, 2008). In their study Donaghy, McMahon & McDowell (1995) observed that in the context of hotels, yield

management practice mainly entails flexible market pricing for fixed room inventory. The study entitled ‘Yield management: An overview’, also suggested further studies on the application on Yield management in hotels to gain deeper understanding on the concept. Yield Management since its inception has therefore developed into an important business theory and practice and is a key technique in managing inventories with high perishability and high fixed costs. According to Lieberman (1993), yield management practice combines into one “information systems, technology, probability, statistics, organizational theory and business expertise and knowledge” into achieving revenue maximization from fixed room inventory.

According to a study by Miricho (2013) on Yield management strategies in Kenya’s town Hotels, 75% of all hotels with occupancy rates of 70% and above were observed to use yield management ingredients (techniques). These yield management ingredients (techniques) were especially used to a greater extent in Five star rated hotels. Miricho (2013) further recommended wider adoption of the yield management concept in the hotel industry in Kenya as a way of boosting the performance of hotels.

The overriding principle in yield management is therefore revenue maximization from available inventory. Kimes (1989) opined that while the concept had worked greatly for airlines yield management in hotels would work perfectly through length of stay management and pricing. A publication on the Cornell hospitality quarterly journal on yield Management and Length-of-Stay-Based Room Pricing by Li, Liu, Riasi & Schwartz (2017) further reinforce these earlier findings by identifying three key components of revenue maximization of room inventory namely; segmentation, Length-of-Stay (LOS) management and Pricing.

Segmentation. Blocker & Flint (2007) stressed that segmentation was key in marketing strategy because it divides a market into small manageable segments. Miricho (2013) on his study on room stock management further described segmentation as the first key in YM and

further argues that a good yield manager understands the needs and peculiarities of different market segments and utilizes them to achieve efficiency and revenue maximization. This clearly discloses the central role of market segmentation in the yield management concept as argued by Li et al (2017). Chiang, Chen & Xu (2007) argued that demand for hotel products needs to be segregated into time sensitive and price sensitive segments and further argued that these are the key base characteristics of the leisure and business travel segments.

Length-Of-Stay (LOS). According to Wafford (2013), LOS is applied in managing demand of hotel room inventory where there is a high demand followed by a period of low demand. By bundling the two periods into one, the hotel requires that customers making reservation requests are required to book a specified minimum number of nights stretching into the period when demand is expected to be low. Likewise, the maximum length of stay is applied where a period of low demand precedes a period of high demand. The strategy focuses on limiting room reservations to a limited number of nights so that it does not extend into high demand and potentially high price period (Wafford, 2013). These findings reinforce the assertions by Li et al (2017) which recommended that managers need to address customer misinformation that longer length of stay (LOS) should automatically result into lower room rates.

Pricing. Donaghy et al (1995), described pricing as an important element in the yield management practice. He further observed that most hotels practice a dynamic pricing model where room rates are adjusted to temper demand for hotel room inventory. Selmi & Dornier (2011) identified pricing as one of the key element to the working of YM where in order to control demand and supply; one has to act on prices and available capacity simultaneously. The key to the successful working of YM is the application of discriminatory pricing policies.

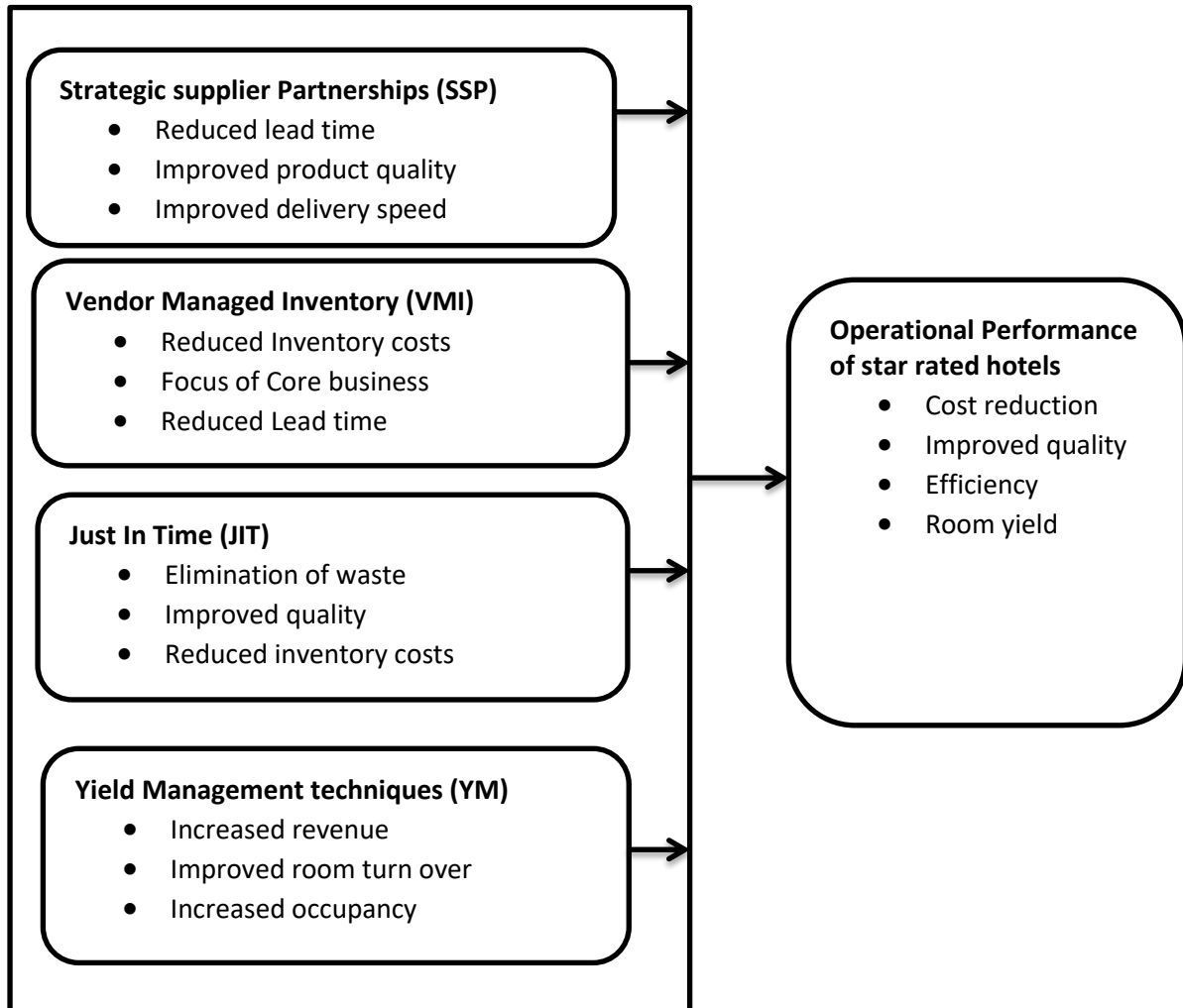
The proponents of the Yield management concept argue that it helps in revenue maximization from time sensitive, perishable and fixed inventory whose demand fluctuates

substantially among distinct market segments. Studies have shown that yield management practices, an offshoot of the yield management theory are highly profitable with companies that practices it reporting revenue increases from way back as 1992 (Darrow, Leimkuhler & Smith, 1992). Canina & Enz (2006) established that there was a strong relationship between profitability and balancing between rates and hotel occupancy. Canina & Enz (2006) further observed a positive correlation between ADR and occupancy; two key operational performance measures for hotels. This underline the key role of yield management practices in hotel operational performance. This concept was especially important in this study as it helped bring into perspective the unique inventory management techniques specific to intangible hotel inventory and which may not be applicable for the tangible inventory. Based on the previous studies on Yield management practices, the researcher hypothesized that Yield management practices affects operational performance.

2.4. Conceptual framework

The conceptual framework sought to establish a cause and effect relationship between various inventory management techniques and operational performance.

FIGURE 2. 1:
CCONCEPTUAL FRAMEWORK



Independent variables

Dependent variable

Source: Author (2021)

2.5. Operationalization

2.5.1. Objectives, variables, indicators and type of measurement

The researcher operationalized the various variables in the study as follows;

On the first objective, the variable was strategic supplier partnerships (independent) and the indicators were; reduced lead-time, improved product quality and improved delivery speed. Linkert/ordinal scale was used for measurement.

The second objective covered vendor-managed inventory as an independent variable of the study. The indicators were; reduced Inventory costs, focus of Core business and reduced lead-time. A Linkert/Ordinal scale was used for measurement.

The third variable (independent variable) was Just in time (JIT) and the indicators were elimination of waste, improved quality and reduced inventory costs. Linkert/Ordinal measurements scale was used on this variable.

On the fourth objective, the variable of the study was yield management practices (independent variable) and the indicators were increased revenue, improved room turn over and increased occupancy. The measurement scale for this variable was linkert/ordinal scale.

To operationalize the dependent variable of the study (operational performance, the researcher used indicators such cost reduction, improved quality, reduced waste, efficiency, room yield, increased Occupancy and customer satisfaction.

2.6. Critique of existing literature

This section covers the researcher's critique of the key literature on inventory management techniques. The researcher observed that the core literature on inventory management in hotels did not cover key areas.

Darwish (2018) only covered the effect of Just in Time techniques on the competitive of international fast food restaurants. This study therefore only focused on JIT at the exclusion of other inventory management techniques. The Kiboko (2017) omitted key

citations in the reference listing. This therefore made it hard for other researchers to review all cited literature conclusively.

The research by Abuya & Shale (2018) on the role of inventory management practices on the performance of hospitality industry in Kenya only focused on supplier management, ICT integration, staff competency and procurement planning and ignored inventory management practices identified by previous studies. The title of the study by Abuya & Shale (2018) should have been on the role of inventory management practices on the performance of hotel industry since the researcher only focused on hotels and not all establishments in the hospitality industry.

Finally, none of the previous studies on inventory management techniques/practices holistically covered the intangible and tangible elements of hotel inventory in one study and the focus in all is on either one or the other.

2.7. Summary of Literature

In Chapter two, both the theoretical and empirical literatures that underpinned the research were covered. The theoretical literature covered all the theories relevant to the variables of the study. In the theoretical literature section, the researcher covered the four key theories that address each of the variables.

The strategic choice theory was devised by John Child in 1970 and is a departure from previous studies that were observed to be deterministic and functional in nature. The theory as advanced brings into play managerial agency and decision making in deciding a strategic course of action (1997). According to Child (1997). The strategic choice theory empowers decision makers to choose the best course of action that addresses the issues at hand. Herney et al (2016) asserted that in every organization, different environmental conditions require a specific organizational response. This therefore requires managers to make strategic choices that address the issue in both the short and long run.

The principal agent theory in the study underpinned the variable on vendor managed inventory. The working of this theory in supply chain relies on mutual trust natured between a principal entity who is the owner of assets and an agent who manages those assets in line with pre-agreed contract (Zhao, 2019). Although there may exist informational asymmetry between two firms, both the principal and agent agree on way to share both benefits and risks (Yin, 2012)

The lean theory underpinned JIT and traces its roots to the Toyota manufacturing system and the first literature was by Krafcik (1988) where he observed that companies that applied the lean thinking had higher levels of performance. Jones & Womack (2003) identified the five key principles of lean production namely; Value, value stream, flow, pull and perfection. Damian et al (2016) described lean management methods in the hotel sector as a way of optimizing of productivity, cost reduction, increasing efficiency and increased quality of customer service.

Yield management theory addressed the management of non-tangible, non-transferable, and highly perishable room inventory in this study. This involves manipulating both prices and available capacity to achieve maximum yield (Miricho, 2013). Other authors such as; Kimes & Wagner, 2001; Frew & O'Connor, 2002 and Li et al, 2017 have also discussed this theory. All these literature capture the evolution of this theory from its inception in the airline industry to its present application in the hotel industry.

The second part on the empirical literature review covered literature on the specific variables. Strategic supplier partnerships has been covered by several authors such as Agyemang et al, 2020; Binalla 2019; Khan & Siddiqui (2018); Omoush, 2020; Qrunfleh & Tarafdar, 2013; Tsai, 2007. In all the literatures, SSP is credited with reducing costs, improved efficiency reducing lead-time, improving quality and better customer experience.

The empirical literature on VMI covered in detail the inception, the working and the observed benefits of application of VMI in various industries. Holmstrom et al 2002; Kemunto, 2014; Mulumba 2016; Wu et al 2016 are some of the authors that have covered the application of VMI in the manufacturing sector while Kiboko (2017) covers literature on VMI application in the hotel industry. In all the literatures, VMI is credited with reducing inventory holding costs, reduced stock outs, efficiency, and improved performance.

The empirical literature of JIT covered the conception of the lean production theory and evolution, application in manufacturing industries as well as its adoption by the service sector more specifically the hotel industry. Agyemang et al, 2020; Dalci & Tanis, 2006; Green et al, 2011; Mulumba, 2016 & Muyundo, 2018 are some of the studies on the application of JIT in the manufacturing industries. Bates, 2009; Cripps et al, 2014; Darwish, 2018 & Kiboko, 2017 covered the application of JIT in restaurants and hotels. In all these literatures, JIT was observed to minimize inventory costs, result to better cash flow, increase efficiency, improved product quality and the elimination of non-value adding activities.

The empirical literature Yield management variable covered the application of this inventory technique on the management of room inventory in hotels. The researcher reviewed the base literature in the yield concept from Donaghy et al, 1995; Hyton & Ingold, 1997; Lieberman, 1993. Current literature on yield management by Chiang et al, 2007; Li et al, 2017; Miricho 2013; Wafford, 2013 was also been reviewed. In all these literatures, YM has been credited with revenue maximization, occupancy and improving room yield in hotels .

2.8. Research gaps

The researcher observed various gaps in the previous literature. Although there is extensive literature on the inventory management practices/ techniques on operational performance, the bulk of it was observed to be on manufacturing, retail, construction and production industries. These included studies by Agyemang et al, 2020; Iravo & Mukopi, 2015; Khan & Siddiqui,

2018; Muyundo, 2018; Ndunge, 2013; Omoush, 2020; Qrunfleh & Tarafdar, 2013. The researcher therefore noted a literature gap both globally and locally. By doing this study, the researcher hoped to add an empirical perspective to the study of inventory management techniques in the hotel industry. The available literature on the inventory management technique in hotels is on the global scene and very few have been done locally. It was therefore hard to generalize these findings locally due to the lack of local literature and the observed dynamics of varying cyclic demand fluctuations.

Studies done on inventory management techniques/practices locally had not been comprehensive and holistic. Miricho (2013) on the topic ‘yield Management strategies in Kenya’s town hotels: Opportunities and scope in Room-Stock Management’, the focus was only room inventory and did not explore tangible, movable stocks as equally important and constitute 25% of total hotel revenues (DeFranco, 2019). The study by Abuya & Shale (2018) on the role of inventory management practices on the performance of the hospitality industry in Kenya did not go into the details of the inventory management practices/techniques as identified by other studies but focused on supply chain relationship, ICT integration, procurement practices and staff training. The room inventory element was also not covered by the aforementioned study by Abuya & Shale(2018). Kiboko (2017) studied inventory management and operational performance among star rated hotels in Mombasa. The research however only focused on tangible, movable, storable inventory and never covered the intangible, non-movable and non-storable inventory. Kiboko (2017) therefore left out room inventory, which is an important part of hotel inventory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter elaborates various aspects of the study. These include research design, population and sample frame, sample size, sampling procedures, instrumentation, validity and reliability of research instrument, data collection, data analysis and ethical consideration.

3.2. Research design

Martens (2015) describe research design as the overall strategy that the researcher chooses to integrate the different components of the study in a coherent and logical way to address the research problem. The research used quantitative descriptive research design. Maxwell (2012) observed that descriptive research is used when data is collected, analyzed and conclusions drawn that describe persons, organizations settings or phenomenon.

The researcher believed that descriptive research would help to establish the effects of inventory management techniques on operational performance of star rated hotels in Nairobi. This will ensure the general and specific objectives are accomplished.

3.3. Target population

Mugenda & Mugenda (2003) described target population as a group of elements to which the researcher wants to make inference to and draw conclusion on characteristic of the whole population.

The target population of this study was Sixty (60) star rated hotels as classified by Tourism Regulatory Authority (TRA). The respondents were Procurement managers, Operations Managers/General Managers and Finance Managers.

The researcher chose on hotels rated between 3 and 5 stars because they have greater scale of operations, hold a substantial amount of inventory and this makes generalization of research findings easy.

TABLE 3. 1
TARGET POPULATION

Target Group	Target population
GM / Operations Manager	30
Finance managers	30
Procurement Managers	30
Total	90

Source: Author (2021)

3.4. Sample size and sampling procedure

Sampling is the statistical process of selecting a subset from a target population of interest for purposes of making observations and inferences (Mugenda & Mugenda, 2003). From the identified target population, a sample size of Thirty (30) hotels rated between 3 and 5 stars was selected using simple random sampling. From the sampled 30 star rated hotels, 3 senior managers were selected per hotel to achieve 90 respondents whom the researcher believed would provide key information to accomplishing the objectives of this study.

3.5. Research instruments

According to Knipe & Mackenzie (2006), a research instrument is data collection tools used to obtain desired data from subjects on a specific research topic. The study adopted questionnaires with closed-ended questions. The questionnaire had sections to ensure collection of the desired biographic data, as well as address both the independent variables and dependent variables.

3.6. Data collection procedures

The researcher used self-administered online questionnaires in the Google form format. This was because it was bit challenging to drop and pick as had been envisaged in the research

proposal. Follow up email reminders and calls to respondents were made after two days to check on the progress.

3.7. Pilot test

Borg, Gall & Gall (2006) recommended research instrument pre-testing to check for validity and reliability.

3.7.1. Validity of research instruments

Validity in research refers to how well data collected from subjects covers the actual area under investigation (Ghauri & Gronhaug, 2005). To ensure validity of the research instruments, the research questionnaire was reviewed and pre-approved by the research supervisor to ensure that the questions were in line with the research objectives.

3.7.2. Reliability of research instruments

Reliability refers to the consistency in a research method (Kleyner & O'Connor, 2011). To ensure reliability, the researcher pre-tested the questionnaires through a pilot study on ten (10) respondents in the hotel sector. Any inconsistencies observed were corrected in consultation with the research supervisor. Reliability of the questionnaire was also achieved by ensuring that the questionnaire was clear, well defined and administered to the right respondents.

3.8. Data analysis and presentation

Before analyzing the raw data collected using questionnaires, data preparation was done through; editing, coding and cleaning. The data was then be analyzed by the use of statistical packages for social sciences (SPSS). Multiple regression analysis was used to find out the relationship between the independent and dependent variables. The findings from the analysis were presented in tables, pie charts, graphs, charts, figures and tables.

The multiple regression model was used as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon \quad (1)$$

Where by the variables were identified as follows:

Y = Operational Performance,

X_1 = Strategic supplier partnership

X_2 = Vendor managed inventory

X_3 = Just in time

X_4 =Yield management.

While β_0 was the constant, β_1 , β_2 , β_3 and β_4 were coefficients of determination and ϵ was the error term.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1. Introduction

This chapter presents an analysis of the results and findings of data collected from the field. The analysis covers the response rate, general information, study variables, diagnostic tests and model fitting. Data was analyzed using SPSS version 26.0. As well as Microsoft, excel. The presentation of research findings was in the form of frequency tables and charts.

4.2. Response rate

Out of 90 questionnaires administered on the Google form platform, 69 (sixty-nine) questionnaires were successfully filled and submitted. This translates to 77% response rate. According to Mugenda & Mugenda (2003), a 50% response rate is adequate, 60% good and above 70% rated very good. This implies that based on above assertion, the response rate of 77% is therefore very good. Table 4.1 shows the response rate.

TABLE 4. 1
RESPONSE RATE

Response Rate	Frequency	Percentage
Response	69	77%
Non Response	21	23%
Total	90	100%

Source: Author (2021)

4.2.1. Response per hotel star category

The researcher analyzed the total responses received per hotel star category and presented the data as in table 4.2.

TABLE 4. 2
Response by star-rating

Star rating	No of respondents	Percentage
3 Star	18	26%
4 Star	40	58%
5 Star	11	16%
Total	69	100%

Source: Author (2021)

4.3 Demographic information

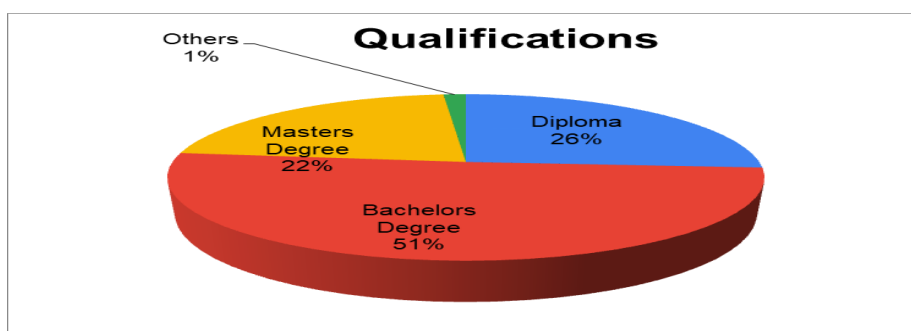
4.3.1 Gender of respondents

The study sought to establish the gender distribution of top managers in star rated hotels in Nairobi. The study established that 72% of senior managers in star rated hotels in Nairobi city are male while 28% are female. Measure should put in place to achieve gender parity of senior management positions in star rated hotels.

4.3.2. Level of education

The study sought to establish the level of education attained by the respondents and the results are as presented in figure 4.2.

FIGURE 4. 1
Academic qualification



Source: Author (2021)

The findings from Figure 4.1 show that 51% of the respondents had obtained a bachelor's degree, 26% of the respondents had a diploma, 22% of the respondents had a Master's Degree, and 1% of the respondents had other qualifications.

4.3.3. Position held at the hotel

The study sought to establish the various positions held by the respondents and the results are as presented in Table 4.3.

TABLE 4. 3
Position held

Position	No of respondents	Percentage
GM/Operations Manager	22	32%
Finance Manager	21	30%
Procurement Manager	26	38%
Total	69	100%

Source: Author (2021)

The findings indicated that 38% of the respondents were procurement managers, 32% of the respondents were GM/operations managers and 30% and were finance managers. These findings indicated that the senior managers sampled had an understanding of inventory management practices although the response rate of procurement managers was slightly higher indicating a greater understanding of the topic under study.

4.3.4 Number of years in same position

The study sought to establish the length of time respondents had been working at the hotels in the respective positions. The data obtained would then be used to ascertain to what extent their responses could be relied upon to make inferences. The findings are indicated in table 4.4.

TABLE 4. 4**Number of years in same position**

No. of years worked	No of respondents	Percentage
Below 5 Years	24	35%
5-10 Years	37	54%
Above 10 Years	8	11%
Total	69	100%

Source: Author (2021)

From the above table, 54% of the respondents indicated that they had been working in the said position for between 5-10 years, 35% indicated they had held the same position for a period of less than 5 years, 11% for indicated that they had been in the indicated position for a period of more than 10 years. From the above findings, it was therefore noted that a majority of the respondents had held the same senior management positions for a considerable period (5 Years and beyond) which indicated that they had proper understanding of the inventory management techniques.

4.4. Study Variables

4.4.1 Strategic supplier partnership and Operational performance among star rated hotels

Several statements relating to strategic supplier partnerships (SSP) and its effects on operational performance were asked and respondents were required to rate the extent of their agreement using the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree. The findings are as shown in table 4.5 below.

TABLE 4. 5**Effects of strategic supplier partnership on operational performance**

Effect of SSP on Operational performance among star rated hotels	Mean	Std.Dev
Strategic supplier partnerships reduces sourcing costs hence improve operational performance.	4.4203	0.8118
Strategic supplier partnerships cushions against purchase price volatility hence sustained operational performance	4.4348	0.6296
Strategic supplier partnership ensures continued quality improvement hence high operational performance	3.9565	0.8649
Strategic supplier partnerships safeguards against supply fluctuations hence continuity of operations	4.5072	0.5589
Strategic supplier partnership ensures timely delivery of goods hence high customer satisfaction	4.4348	0.0551
Extent to which the use of strategic supplier partnership affects operational performance in your hotel	4.4348	0.6296

Source: Author (2021)

Respondents agreed that SSP reduces sourcing costs and hence improves operational performance of star rated hotels at a mean of 4.4203 and a standard deviation of 0.8118. Respondents agreed that Strategic supplier partnerships cushions against purchase price volatility hence sustained operational performance and this was rated at a mean of 4.4348 and a standard deviation of 0.6296. The findings on the role of SSP in continued quality improvement by star rated hotels was rather above average with a mean of 3.9565 and a standard deviation of 0.8649. Respondents agreed that SSP helps in safeguarding supply fluctuations giving a mean of 4.5072 and a standard deviation of 0.5589. The findings on the role of SSP in ensuring timely delivery of goods showed a mean of 4.4348 and a standard deviation of 0.5551.

The findings on the extent to which strategic supplier partnership affects the operational performance of star rated hotels was rather impressive at a mean of 4.4348 and a

standard deviation of 0.6296. These findings concur with that of Agyemang et al (2020) where SSP had a high effect of operational performance.

4.4.2 Vendor Managed Inventory and Operational performance among star rated hotels

Several statements relating to Vendor Managed Inventory (VMI) and its effects on operational performance were asked and respondents were required to rate the extent of their agreement using the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree. The findings are as shown in table 4.6 below.

TABLE 4. 6
Effect of Vendor managed inventory on operational performance

Effect of VMI on Operational performance among star rated hotels	Mean	Std.Dev
Vendor Managed inventory leads to lower inventory and inventory costs hence improved operational performance	3.9955	0.4998
Vendor managed inventory helps organizations focus on their core business hence higher levels of customer satisfaction	3.6087	0.6365
Vendor managed inventory overcomes inventory constraints and helps meet operational performance targets	3.6812	0.5814
VMI sets minimum and maximum supply limits thus eliminating expiries and spoilage	3.8406	0.5847
VMI ensures seamless supply of inventory thus helping organizations boost efficiency	3.8116	0.6009
Extent to which the use of vendor managed inventory technique affects operational performance of hotels	3.1304	0.3801

Source: Author (2021)

The responses obtained from the respondents showed that a majority of the respondents (mean of 3.9955) believed that the application of VMI lowers inventory and inventory costs while they also agreed that VMI helps organizations focus on their core business hence higher levels of customer satisfaction at a mean of 3.6087 and standard

deviation of 0.6365. Respondents believed that VMI helps organizations overcome inventory constraints and helps meet operational performance targets. This ranked at a mean of 3.6812 and a standard deviation of 0.5814. The study also established that VMI helps eliminate spoilages and boost efficiency. Both indicators were ranked at a mean of 3.8406 and 3.8116 respectively. These findings concur with the findings by Mulumba (2016) where VMI was observed to reduce both holding and ordering costs, obviate stock outs, overcome inventory constraints and eliminate waste.

The effect of VMI on operational performance had a mean of 3.1304 and a standard deviation of 0.3801. This concurs with findings by Agyemang et al (2020) where VMI was observed to elicit low to medium preference among manufacturing firms in Ghana.

4.4.3 Just In Time and Operational performance among star rated hotels

Several statements about Just In Time (JIT) and its effects on operational performance were asked and respondents were required to rate the extent of their agreement using the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree. The findings are as shown in table 4.7 below.

TABLE 4. 7
Effect of JIT on operational performance

Effect of JIT on Operational performance among star rated hotels	Mean	Std.Dev
JIT leads to cost reduction through holding lean inventory hence high performance	4.2609	0.6337
JIT enables hotels offer fresh products to their customers hence high satisfaction	3.8551	0.6919
JIT is a tool that enables hotels to increase efficiency and hence boost competitive advantage	3.9855	0.6299
JIT helps in elimination of waste and spoilages hence cost reduction	4.1014	0.6218
JIT enables hotels to continually improve their processes and		

products hence high operational performance	4.0145	0.6965
JIT helps to foster strong supplier relations thus eliminating non-value adding process leading to cost saving	4.0290	0.6854
Extent to which the use of JIT affects operational performance of hotels	3.4637	0.5578

Source: Author (2021)

From Table 4.7 above, it was observed that the application of JIT leads to cost reduction through holding lean inventory hence high performance and from the analysis of the results, the responses had a mean of 4.208 and a standard deviation of 0.6337. This underline the key role JIT plays in cost reduction and mirrors the findings by Kamakia (2015). When asked on the role of JIT in ensuring hotels offer fresh products to their customers, respondents agreed that JIT plays a key role and responses had a mean of 3.8551 and a standard deviation of 0.6919. On JIT as a tool that enables hotels to increase efficiency and hence boost competitive advantage, the responses had a mean of 3.9855 and standard deviation 0.6299 again this concurs with the findings and assertions by Kamakia (2015) on that JIT helps in boosting competitive advantage of companies over their competitors. Respondents also agreed that JIT helps in elimination of waste and spoilages hence cost reduction at a mean of 4.1014 and a standard deviation of 0.6218. On the role of JIT in helping hotels continually improve their processes and products hence high operational performance, the findings indicated that majority of the responses were affirmative. This sub variable had a mean of 4.0145 and a standard deviation of 0.6965. Findings of the study also revealed that JIT helped to foster strong supplier relations thus eliminating non-value adding process leading to cost saving. These findings concur with the assertion by Dalci & Tanis (2006) that JIT helps organizations eliminate non-value adding processes. The findings on the role of JIT in cost saving also concur with findings by Cripps, 2014; Green et al,2011; Kiboko, 2017 who also established that JIT helps in cost reduction

On the extent to which the use of JIT affects operational performance of hotels, the findings indicated that JIT had a moderate effect on the overall operational performance of star rated hotels in Nairobi. This is represented by a mean of 3.4637 and a standard deviation of 0.5578. The findings concur with the findings by Agyemang et al (2020) who observed a moderate impact of JIT on operational performance among manufacturing firms. The contradicts findings by Kiboko (2017) who established that JIT was used largely in hotels and thus affected operational performance to a large extent.

4.4.4. Yield management Operational performance among star rated hotels

Several statements about Yield Management (YM) and its effects on operational performance were asked and respondents were required to rate the extent of their agreement using the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree. The findings are as shown in table 4.8 below.

TABLE 4. 8
Effect of Yield Management on operational performance

Effect of YM on Operational performance among star rated hotels	Mean	Std.Dev
Variability of room rates enables hotels to maximize revenues during periods of high demand	4.6377	0.5934
Flexible pricing enables hotels alter prices to boost occupancy in periods of low demand	4.5507	0.6072
Analysis of hotel demand patterns leads to understanding of booking patterns hence better segmentation to achieve high occupancy	3.6696	0.8386
Implementation of Length of stay limitations helps hotels spread demand to off-peak days hence improved occupancy	4.2464	0.8813
Length of stay control helps hotels take advantage of festivities and special events to maximize on revenue	4.4927	0.6093
YM helps hotels to allocate rooms to different distribution channels according to revenue yield hence maximizing on both ADR and Revenue Per O occupied Room	4.5652	0.7170
Extent to which the application of YM practices affects		

operational performance of hotels	4.3768	0.6665
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Source: Author (2021)

From the above table, variability of room rates enabled hotels to maximize revenues during periods of high demand by using various yield management techniques, the sub variable on variable room rates had a mean of 4.6377 and a standard deviation of 0.5934. This is also closely linked to flexible pricing which was observed to enable hotels alter prices to boost occupancy in periods of low demand at a mean of 4.5507 and a standard deviation of 0.6072. The findings agree with Sheivachman (2011) who established that “YM provides a ‘treasure chest’ of commercial flexibility, operational systems, strategies, tactics and a zest for competitiveness”. Respondents agreed that the analysis of hotel demand patterns leads to understanding of booking patterns hence better approach to segmentation. This statement rated at a mean of 3.6696 and a standard deviation of 0.8386.

The findings on the length of stay sub variable indicated that implementation of length of stay limitations helped hotels spread demand to off-peak days hence improved occupancy at a mean score of 4.2464 and a standard deviation of 0.8813. Findings also revealed that length of stay control helped hotels take advantage of festivities and special events to maximize on revenue and had a mean of 4.4927 and a standard deviation of 0.6093. These findings by the study are in agreement with findings by Wafford, (2013) who observed that LOS was a tool used by hotels to boost revenues during different hotel demand cycles. The results also give credence to dissertation by Li et al (2017) that revenue and hotel managers should use LOS to boost their revenues. The findings also revealed that YM helped hotels in allocating rooms to different distribution channels according to revenue yield hence maximizing on both ADR and Revenue Per Occupied Room. This sub variable had a mean of 4.5652 and a standard deviation of 0.7170. Respondents agreed that YM helped in room

allocation to different distribution channels, which is in tandem with findings by Miricho (2013).

The findings on the extent to which the application of YM practices affects operational performance of hotels revealed a mean of 4.3768 and a standard deviation of 0.6665. This means that YM affects the performance of hotels in Nairobi to a large extent. These findings mirrors the findings by Miricho (2013) who observed that the application of Yield management techniques resulted into better occupancy performance for town hotels

4.4.5. Operational performance of star rated hotels

Several statements about Operational performance were asked and respondents were required to rate the extent of their agreement using the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree. The findings are as shown in table 4.9 below.

TABLE 4. 9
Operational performance

Operational performance indicators among star rated hotels	Mean	Std.Dev
The application of inventory management techniques reduces cost	4.4783	0.5032
Application of inventory management techniques improves quality of hotel products	3.5507	0.5825
Inventory management techniques have helped boost efficiency	4.3013	0.6466
Application of Inventory management techniques has resulted to higher room yield	4.6377	0.5137

Source: Author (2021)

The findings of the study revealed that inventory management techniques to a large extend helped hotels to reduce costs, boost efficiency and boost room yield. These indicators of operational performance were rated at mean of 4.4783, 4.3013 and 4.6377 respectively.

Respondents also agreed that inventory management techniques helped hotels to improve on the quality of their products. This was rated at a mean of 3.5507 and a standard deviation of 0.5825. The findings are in agreement with the findings by Agyemang et al, 2020; Bayraktar et al, 2007; Binalla, 2019; Cripps, 2014; Darwish, 2018; Green et al,2011; Kiboko, 2017.

4.4.6. Preference of Inventory management techniques

The study sought to establish the degree of usage of inventory management techniques by ranking them according to the observed effect on operational performance. The results of the findings are listed in Table 4.10

TABLE 4. 10
Preference of Inventory Management Techniques

Inventory techniques	No of respondents	Rank	Mean	Std. Deviation
Yield Management	69	1 st	4.3913	0.4311
Strategic Supplier Partnership	69	2 nd	4.3507	0.4371
Just In Time	69	3 rd	4.0411	0.3829
VMI	69	4 th	3.7855	0.3602

Source: Author (2021)

From the descriptive statistics presented in table 4.9, the study showed that Yield Management had the greatest effect on operational performance at a mean of 4.3913, followed by SSP at 4.3507, JIT at 4.0411 and VMI at 3.7855. These findings infer that Yield Management is the most preferred inventory management technique. While SSP is the most preferred inventory management technique for movable, physical stocks a fact supported by the findings by Agyemang et al (2020). The findings on yield management techniques are consistent with the findings by Miricho (2013) that indicated that star rated hotels used yield

management ingredients. However, the findings on the ranking of JIT and VMI contradict finding by Agyemang et al (2020) which established that VMI was more popular than JIT.

4.5. Diagnostic test

Before conducting regression analysis, diagnostic tests to test the suitability of the dataset for regression was carried out. The specific tests conducted in included; multicollinearity and normality. Variance Inflation Factor (VIF) was used to test for Multicollinearity while Skewness and Kurtosis was used to test Normality.

4.5.1 Multicollinearity

A state in which the independent variables in a study are highly correlated is called multicollinearity (Kumar, 2008). Variance of inflation factor (VIF) was used to test for Multicollinearity and the findings are as indicated in Table 4.11.

**TABLE 4. 11
Multicollinearity Test**

Collinearity Statistics	
Tolerance	VIF
.728	1.373
.901	1.110
.655	1.527
.580	1.726

Source Author (2021)

As indicated in Table 4.11, Strategic supplier partnership had a VIF of 1.373, Vendor managed inventory had a VIF of 1.110, Just-In-Time had 1.527 and Yield Management had VIF of 1.726. The VIF in all the variables lies between 1 and 10 and this showed absence multicollinearity in the dataset.

4.5.2 Normality test

Normality test was done using Skewness and Kurtosis and findings are as illustrated.

TABLE 4. 12
Normality test

	N	Maximum	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SSP	69	5.00	-.806	.289	.951	.570
VMI	69	4.80	.158	.289	.457	.570
JIT	69	4.67	-.709	.289	.303	.570
YM	69	5.00	-.714	.289	-.371	.570
OP	69	5.00	.157	.289	-.561	.570
Valid N (listwise)	69					

Source Author (2021)

From Table 4.10 above table, SSP had a skewness of -0.806 and Kurtosis of 0.951, VMI had a Skewness of 0.158 and a Kurtosis of 0.45, JIT had a Skewness of -0.709 and a Kurtosis of 0.303, YM had a Skewness of -0.714 and a Kurtosis of -0.371 and Operational performance had a Skewness of 0.157 and a Kurtosis of -0.561. According to Kothari (2004) data analysis can proceed if Skewness and Kurtosis is not greater than +/-2. From the above diagnostic test, the data was considered to be normally spread.

4.5.3 Heteroscedasticity test

A given data set is observed to have Heteroscedasticity problem if the pattern of errors does not remain constant (Gujarati 2003) the residuals were subjected to graphical analysis using SPSS The results showed absence of heteroscedasticity and are presented in Appendix VI.

4.6. Regression Analysis

Multiple linear regression was conducted to investigate on the relationship between the independent variables and dependent variables. The results of the study were illustrated in Model summary, ANOVA and coefficients.

TABLE 4. 13**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.425 _a	.180	.129	.27688

a. Predictors: (Constant), YM, JIT, SSP, VMI

b. Dependent Variable: OP

Source Author (2021)

Table 4.11 above showed a R squared of 0.18 which indicated that the change in the operational performance of star rated hotels were as a result of the changes in the inventory management techniques studied consisting of SSP, VMI, JIT and YM. These inventory management techniques were therefore responsible for 18% change in operational performance while 82% change in the operational performance of star rated hotels in Nairobi was as a result of other predictors not in the regression model. This Contradicts the studies by Agyemang et al (2020) & Kiboko (2017) which revealed that 37.1% and 37.4% operational performance change was attributed to change in the inventory management techniques respectively.

TABLE 4. 14**ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.079	4	.270	3.519	.012 ^b
	Residual	4.906	64	.077		
	Total	5.986	68			

a. Dependent Variable: OP

b. Predictors: (Constant), YM, JIT, SSP, VMI

Source Author (2021)

From table 4.12 above, the P value (0.012) is smaller than 0.05 and therefore this implies that jointly the independent variables do a good job in explaining the change in dependent

variables. This contradicts the findings by Kiboko (2017) where all independent variables considered together did not provide a significant explanation of the relationship between inventory management practices and the operational performance of hotels in Mombasa. The findings in table 4.12 also mirror the findings by Agyemang et al (2020) which found that the independent variables considered jointly had a significant relationship with the operational performance of hotels in Nairobi

TABLE 4. 15
Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	4.824	.542		8.903	.000
SSP	-.121	.056	-.257	-2.170	.034
VMI	-.160	.096	-.205	-1.672	.099
JIT	-.028	.062	-.052	-.446	.657
YM	.131	.054	.295	2.425	.018

a. Dependent Variable: OP

Source Author (2021)

The resultant equation from the analysis of coefficients was

$$Y = 4.824 - 0.121X_1 - 0.16X_2 - 0.028X_3 + 0.131X_4 + \epsilon \quad (2)$$

Where: Y = Operational Performance, X₁= Strategic supplier partnership, X₂= Vendor managed inventory, X₃= Just in time and X₄=Yield management.

The results from Table 4.13 revealed that all other factor held constant, the operational performance of star rated hotels would be 4.824. This means that a unit decrease in the SSP would decrease the operational performance of star rated hotels by 0.121, a unit decrease in VMI would decrease operational performance by 0.16, a unit decrease in JIT would decrease the operational performance by 0.028 and a unit increase in Yield management practices would increase the operational performance by 0.131. From the above

findings the P values of SSP is less than 0.05 and therefore has a significant negative relationship with operational performance. The P values for both VMI and JIT were all more than 0.05 and therefore showed no significant relationship with operational performance. The P value for Yield management was lower than 0.05 and therefore YM has a significant relationship with operational performance.

It was surprising to note that SSP had a negative relationship with the operational performance of star rated hotels in Nairobi. This contradicts the findings by Agyemang et al (2020) who found a positive relationship between SSP and operational performance. The findings on VMI and JIT were in line with the findings by Kiboko (2017) where both variables were observed to have no significant relationship with operational performance. Results on YM are in line with the findings by Li et al, 2017; Miricho, 2013 and Wafford (2013) who observed a positive relationship between Yield management practices and operational performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter contains summary of research findings on each variable, a comprehensive explanation of the findings, conclusions in line with the objectives and recommendations.

5.2. Summary of the Major Findings

The following is a summary of the major findings of this study in relation to the study objectives

5.2.1. Effect of strategic supplier partnership on the operational performance of star rated hotels in Nairobi city

The effects of strategic supplier partnership on the operational performance as observed in the findings are; reduction of sourcing costs, cushioning against market price volatility, safeguarding against supply fluctuations and ensuring timely delivery of goods. Respondents agreed that all these played a critical role in the operational performance of star rated hotels in Nairobi city.

Respondents agreed that strategic supplier partnership affects the operational performance of star rated hotels to a large extent. Strategic supplier partnership ranked second among the selected inventory management techniques adopted for this study. This showed that SSP was popular among star rated hotels in Nairobi.

5.2.2. Effect of vendor managed inventory on the operational performance of star rated hotels in Nairobi city

VMI lowers inventory levels and inventory costs of star rated hotels, shifts the responsibility of inventory monitoring, and re-order from hotels to suppliers. This enables hotels to focus on their core business and customer satisfaction thus resulting to higher levels of customer service. VMI helps organizations overcome inventory constraints and helps meet operational performance targets. VMI also plays a role in eliminating spoilages and boosting efficiency in inventory operations. These findings mirror the findings by Mulumba (2016) where VMI was observed to reduce both holding and ordering costs, obviate stock outs, overcome inventory constraints and eliminate waste.

VMI was ranked fourth among the four inventory management techniques and responses indicated that it had a moderate effect on the operational performance of star rated hotels in Nairobi. This concurs with findings by Agyemang et al (2020) where VMI was observed to elicit low to medium preference among manufacturing firms in Ghana.

5.2.3. Effect of Just In Time on the operational performance of star rated hotels in Nairobi city

JIT practices among them JIT production and JIT purchases helped in the reduction of costs through holding lean inventory hence high performance. JIT is a tool that enabled hotels to increase efficiency and boost competitive advantage. This underlines the key role JIT plays in cost reduction and mirrors the findings by Kamakia (2015). JIT helped in elimination of waste and spoilages as well as continual improvement of processes. The continual process improvements through the thinking process also helped overcome inventory constrains. JIT helped to foster strong supplier relations thus eliminating non-value adding process. The JIT process is anchored on a good relationship with key suppliers to ensure that there is no lag in

lead time These findings concur with the findings by Cripps, 2014; Dalci & Tanis, 2006; Green et al, 2011 & Kiboko, 2017.

JIT ranked as the third most preferred inventory management practice among star rated hotels in Nairobi. This was done through the observation of linkert scale ratings on the perceived effect of JIT on the operational performance of star rated hotels.

5.2.4. Effect of Yield Management on the operational performance of star rated hotels in Nairobi city

Yield management is one of the most popular inventory management techniques among star rated hotels in Nairobi. It is a technique applied on the intangible non storable and highly perishable room inventory. Yield management practices are used by most hotels in Nairobi to achieve better occupancy performance and this concurs with the findings by Miricho (2013). The most common yield management practices applied to boost operational performance of hotels include; the use of dynamic pricing regimes for room rates, which is applicable at different times in an effort to stimulate, control demand and maximize revenue yield. In an effort to spread demand during peak days, hotels require a minimum length of stay for every booking this helps in spreading out demand and maximizing revenues during festivities.

Hotels used YM to allocate rooms to different distribution channels based on the potential revenue yield. This means that hotels could block-off allocation to unfavorable distribution channels and transfer allocation to channels that promise higher revenue yield. .

5.2.5. Operational performance of star rated hotels in Nairobi city

Inventory management techniques helped star rated hotels in Nairobi to reduce costs, boost efficiency, and boost room yield. Cost and efficiency are closely linked to the movable tangible stocks while room yield relates to the non-tangible highly perishable room inventory.

The findings of the effect of inventory management techniques on quality did not give substantive results and therefore could not be authoritatively demonstrated.

5.3. Discussion

Inventory management is among a few of resource deployment decisions that managers have to make because on the position it occupies in organization's working capital structure (Ndunge, 2013). Today's business environment is considered volatile, uncertain, complex and ambiguous (VUCA), Yiğit (2020). However, huge savings can be realized through efficient management of inventory. To ensure efficiency in operations, organizations adopt different strategies that ensure inventories and related operations support operations (Barret, 2015)

The above study on the effect of inventory management techniques on operational performance observed that jointly, inventory management techniques (SSP,VMI, JIT and YM) had a positive correlation with the operational performance of star rated hotels in Nairobi. The analysis of model Summary, (table 4. 13) showed a R^2 value of 0.18. Thus, the inventory management techniques under study causes 18% change in the operational performance of star rated hotels in Nairobi while other predictors not included in the study cause 82% change. The results showed that Yield management is the most used inventory management practice while Vendor managed inventory was the least used. This contradicted the findings by Agyemang (2020) on the inventory management techniques in manufacturing firms. This was an indication that the inventory management techniques applicable in hotels vary as compared to other industries. This was also highlighted by regression results, which showed an inverse relationship between SSP and operational performance.

The summarized finding on the specific inventory management techniques showed that SSP played a role in reducing sourcing and other related costs, safeguarding hotels

against price volatility, protecting hotels from upstream supply fluctuation and ensuring timely delivery of goods and services to customers. All these are key drivers of operational performance in the hotel industry. VMI was observed to be a key element in reducing inventory and related costs, addressing inventory related constraints, elimination of spoilages and wastage and contributing to high levels of customer service through focus on core business. JIT enormously contributed to inventory leanness thus reducing costs and the proportion of inventory in the net working capital, helped deliver fresh products to customers and played a key role in enhancing supplier relationships. Yield management; the only room inventory management technique under study was responsible for maximizing room revenues, boosting room occupancy levels and allocation of rooms to different distribution channels. This helped hotels boost their average daily rate and revenue per occupied room; two key room performance indicators. The findings on inventory management practices on operational performance showed that the different techniques adopted had effect on the cost, efficiency customer service and room yield.

5.4. Conclusion

The general objective of this study was to establish the effect of inventory management practices on the operational performance of star rated hotels. The study established that jointly, inventory management techniques, which were the independent variables of the study, had significant effect on the operational performance of star rated hotels in Nairobi. This was demonstrated by a P value of 0.012 ($P < 0.05$). The inventory management techniques in this study were observed to have an 18% effect on operational performance with 82% attributed to other predictors not in the regression model.

The study concluded that Strategic supplier relationship (SSP) is the second most popular inventory management technique. This contradicted findings by Agyemang et al (2020) The study also concluded that SSP helps in reduction of sourcing costs, cushions

hotels against market price volatility, helps safeguard against supply fluctuations and ensures timely delivery of goods. All these are significant in meeting the set operational KPIs. SSP therefore takes the trajectory suggested by Kay (2014) on changing the perspective of the buyer- supplier relationship into a value enhancing partnership where both parties mutually benefit.

Vendor managed inventory is the least used inventory management techniques among all the techniques studied . The study also concluded that VMI helps reduce inventory levels and the resultant costs, obviates stock outs, reduces stock spoilages help enhance efficiency of operations. VMI is also a solution to inventory related constraints such as re-ordering.

The study concluded that JIT's main focus is the reduction of costs through lean inventory operations such as ordering to demand. This has a trickledown effect on all the costs associated with inventory. JIT also has a key role in the reduction of spoilages through the streamlining of operations through the principle of continual improvement. JIT boosts organization's competitive advantage through the elimination of non-value adding activities. This reduction in costs, spoilages and the continual improvement of processes affects operational performance.

The study concluded that Yield management was the most preferred inventory management practice amongst hotels. The focus of yield management was manipulation of prices and available room inventory and control of the length of stay. This helps in increasing the ADR, revenue yield and revenue per occupied room. This happens through the continued monitoring of demand swings coupled with making the right decision that helps in achieving a strategic fit. YM practices management practices allowed hotels the flexibility to vary their prices according to available demand. This was key in attaining optimum occupancy levels. The findings of the study mirrors the findings by Canina & Enz (2006) who underlined the

importance YM boosting, ADR and room yield. Lastly, the study concluded that Inventory management techniques play a key role in cost reduction and cost control, boosting of efficiency as well as revenue yield.

5.5. Recommendations

The study recommends the following;

The management of star rated hotels in Kenya should seek to deepen their relationships with key suppliers in their zest to minimize costs associated with inventory and go beyond supplier-client relationships. This will ensure that they realize all the benefits of SSP. The top management of star rated hotels in Nairobi should explore the usage of vendor-managed inventory more as a way of reducing their working capital. If adopted and properly structured, it will be a major saving since inventory is a key cost driver for hotels.

Just in Time practices seeks to usher in unparalleled inventory leanness while at the same time ensuring continued delivery of service. The top management for hotels should therefore deeply explore the application of JIT in order to reap maximum benefits of JIT such as reduced costs and efficiency. Yield management thrives in a flexible pricing regime. Hotel managers should therefore have in place automated reservation and distribution systems to continually and accurately monitor demand shifts and provide a virtual interface with all distribution channels.

5.6. Recommendations for further research

This study covered the effect of inventory management techniques on the operational performance of star rated hotels in Nairobi. The hypothesized inventory management techniques namely SSP, VMI, JIT and YM were observed to have an effect of 18% on operational performance. The researcher therefore recommends further studies on other inventory management techniques to determine their effect on operational performance.

Stand-alone Star-rated restaurants have become a new phenomenon in Kenyan hospitality space. The researcher therefore recommends future studies on this new segment of the hospitality business to establish the various inventory management techniques employed to boost both operational and financial performance.

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APPENDICES
APPENDIX I: RESEARCH QUESTIONNAIRE

Introduction

This questionnaire is for data collection purposes on the effect of inventory management techniques on operational performance. All information provided will be treated with utmost confidentiality and used for academic purposes only.

Questionnaire No:

Section A: General information

1. The hotel name
2. Star rating of the hotel.....
3. Gender of Respondent
A. Male [] B. Female []
4. Highest level of education attained by respondent
A. Diploma [] B. Bachelor's Degree [] C. Master's degree [] D. Other []
5. What position do you hold in the hotel?
A. GM / Operations manager []
B. Finance Manager []
C. Procurement Manager []
6. How long have you been in this position?
A. Below 5 Years []
B. 5-10 years []
C. Over 10 years []

Section B. Strategic Supplier Partnership and Operational Performance

Below are several statements on strategic supplier partnerships (SSP) and its effects on operational performance. Rate the extent of your agreement Using the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree.

Statements	1	2	3	4	5
Strategic supplier partnerships reduces sourcing costs hence improve operational performance					
Strategic supplier partnerships cushions against purchase price volatility hence sustained operational performance					
Strategic supplier partnership ensures continued quality improvement hence high operational performance					
Strategic supplier partnerships safeguards against supply fluctuations hence continuity of operations					
Strategic supplier partnership ensures timely delivery of goods hence high customer satisfaction					

2. To what extent do you feel use of strategic supplier partnership affects operational performance in your hotel?

- Not at all []
- Little Extent []
- Moderate Extent []
- Large Extent []
- Very Large Extent []

Section C. Vendor Managed Inventory and Operational Performance

Below are several statements on vendor managed inventory (VMI) and its effects on operational performance. Rate the extent of your agreement with the following statement on its applicability in hotels in Nairobi. Use the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree.

Statements	1	2	3	4	5
Vendor Managed inventory leads to lower inventory and inventory costs hence improved operational performance					
Vendor managed inventory helps organizations focus on their core business hence higher levels of customer satisfaction					
Vendor managed inventory overcomes inventory constraints and helps meet operational performance targets					
VMI sets minimum and maximum supply limits thus eliminating expiries and spoilage					
VMI ensures seamless supply of inventory thus helping organizations boost efficiency					

2. To what extent do you feel the use of vendor-managed inventory affects operational performance in your hotel?

Not at all []

Little Extent []

Moderate Extent []

Large Extent []

Very Large Extent []

Section D. Just In Time and Operational Performance

1. Below are several statements on Just In Time (JIT) and its effects on operational performance. Rate the extent of your agreement with the following statement on its applicability in hotels in Nairobi. Use the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree

Statements	1	2	3	4	5
JIT leads to cost reduction through holding lean inventory hence high performance					
JIT enables hotels offer fresh products to their customers hence high satisfaction					
JIT is a tool that enables hotels to increase efficiency and hence boost competitive advantage					
JIT helps in elimination of waste and spoilages hence cost reduction					
JIT enables hotels to continually improve their processes and products hence high operational performance					
JIT helps to foster strong supplier relations thus eliminating non-value adding processes leading to cost saving					

2. To what extent do you feel just in time affects operational performance in your hotel?

Not at all []

Little Extent []

Moderate Extent []

Large Extent []

Very Large Extent []

Section E. Yield Management Techniques and Operational Performance

Below are several statements on Yield Management (YM) and its effects on operational performance. Rate the extent of your agreement with the following statement on its applicability in hotels in Nairobi. Use the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree

Statements	1	2	3	4	5
Variability of room rates enables hotels to maximize revenues during periods of high demand					
Flexible pricing enables hotels alter prices to boost occupancy in periods of low demand					
Analysis of hotel demand patterns leads to understanding of booking patterns hence better segmentation to achieve high occupancy					
Implementation of Length of stay limitations helps hotels spread demand to off-peak days hence improved occupancy levels					
Length of stay control helps hotels take advantage of festivities and special events to maximize on revenue.					
YM helps hotels to allocate rooms to different distribution channels according to revenue yield hence maximizing on both ADR and Revenue Per O occupied Room					

2. To what extent do you feel the application of yield management techniques affects operational performance in your hotel?

Not at all []

Little Extent []

Moderate Extent []

Large Extent []

Very Large Extent []

Section F. Operational Performance

Below are several statements on operational performance. Rate the extent of your agreement with the following statement. Use the Likert scale of 1-5 where 1= strongly disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4=Agree and 5=Strongly Agree

Statements	1	2	3	4	5
The application of inventory management techniques reduces cost					
Application of inventory management techniques improves quality of hotel products					
Inventory management techniques have helped boost efficiency					
Application of Inventory management techniques has resulted to higher room yield					

THE END

APPENDIX II: CLASSIFIED ESTABLISHMENTS-REGISTER

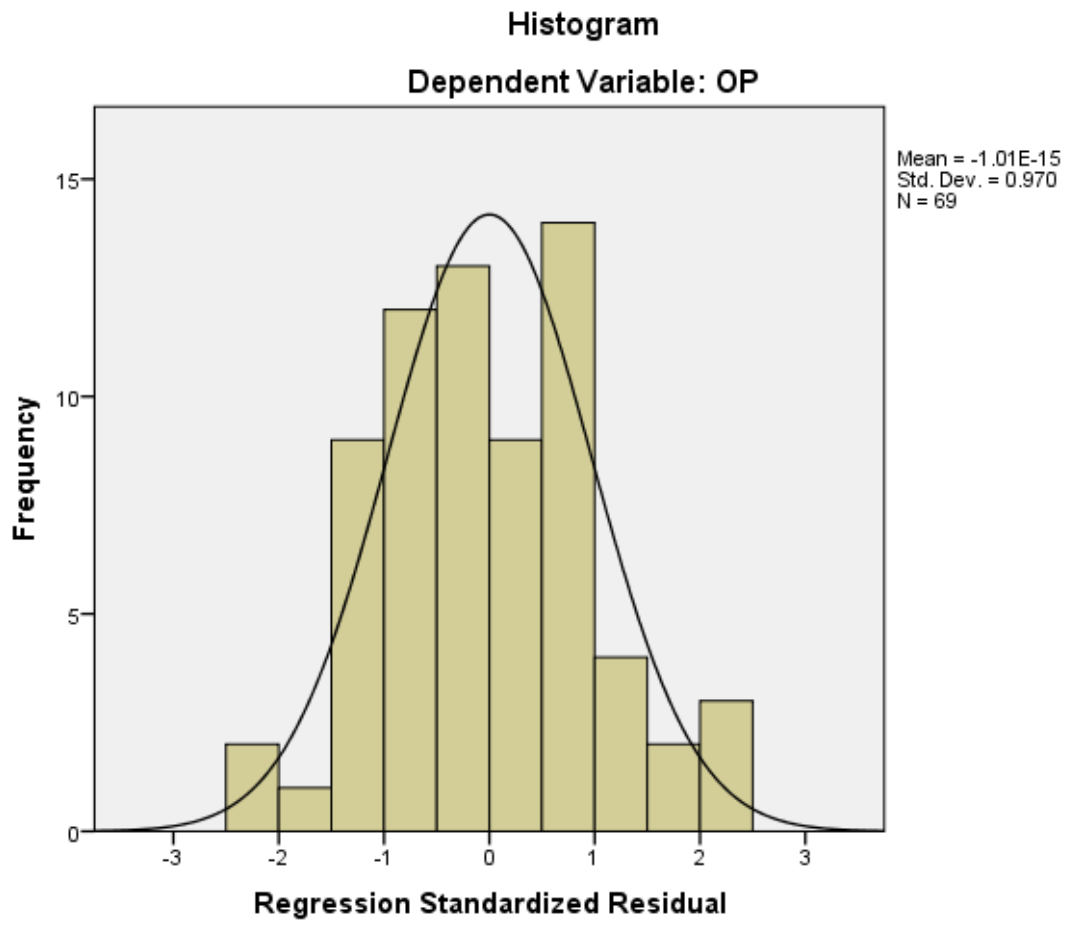
CLASSIFIED ESTABLISHMENTS-REGISTER

1. GREATER NAIROBI					
NO	ESTABLISHMENT	COUNTY	CAPACITY		RATING
			ROOMS	BEDS	
1	Intercontinental Nairobi	Nairobi	326	372	*****
2	Radisson Blue Hotel Nairobi	Nairobi	271	354	*****
3	The Sarova Stanley	Nairobi	217	440	*****
4	Villa Rosa Kempinski	Nairobi	200	216	*****
5	Fairmont The Norfolk	Nairobi	170	200	*****
6	Sankara Nairobi	Nairobi	156	167	*****
7	The Boma Nairobi	Nairobi	148	178	*****
8	Crowne Plaza Nairobi Airport	Nairobi	144	209	*****
9	Tribe Hotel	Nairobi	137	154	*****
10	Dusit D2	Nairobi	101	122	*****
11	Hemingway's Nairobi	Nairobi	45	50	*****
12	Hilton Nairobi Limited	Nairobi	287	334	****
13	Crowne Plaza	Nairobi	206	254	****
14	Hilton Garden Inn Nairobi Airport	Nairobi	175	226	****
15	City Lodge Hotel At Two Rivers	Nairobi	171	200	****
16	Southern Sun Mayfair Nairobi	Nairobi	171	212	****
17	Eka Hotel	Nairobi	167	220	****
18	Sarova Panafric Hotel	Nairobi	162	324	****
19	Silver Springs Hotel	Nairobi	160	180	****
20	Nairobi Safari Club	Nairobi	146	186	****
21	The Panari Hotel, Nairobi	Nairobi	136	272	****
22	Ole Sereni Hotel	Nairobi	134	206	****
23	Windsor Golf Hotel and Country Club	Nairobi	130	205	****
24	Fairview Hotel	Nairobi	127	133	****
25	Weston Hotel	Nairobi	120	154	****
26	Golden Tulip Westlands	Nairobi	94	188	****
27	Amboseli Serena Lodge	Kajiado	92	184	****
28	Gelian Hotel	Machakos	90	136	****
29	Pride Inn Lantana Apartments and Suites	Nairobi	55	110	****
30	Executive Residency by Best Western.	Nairobi	48	106	****
31	House of Waine	Nairobi	11	20	****
32	Carnivore Restaurant	Nairobi	0	0	****

33	Ibis Styles Nairobi Westlands	Nairobi	277	331	***
34	Maanzoni Lodge	Machakos	272	421	***
35	Azure Hotel	Nairobi	165	231	***
36	Best Western Plus Meridian Hotel	Nairobi	128	166	***
37	Ngong Hills Hotel	Nairobi	110	165	***
38	The Heron Portico	Nairobi	109	218	***
39	Pride Inn Raptha Nairobi,	Nairobi	100	200	***
40	Sportsview Hotel Kasarani	Nairobi	94	188	***
41	Kenya Comfort Suits	Nairobi	88	120	***
42	Amboseli Sopa Lodge	Kajiado	83	166	***
43	La Masion Royale	Nairobi	71	144	***
44	The Clarion Hotel	Nairobi	62	67	***
45	Kibo Safaris Camp	Kajiado	60	120	***
46	Boma Inn Nairobi	Nairobi	59	83	***
47	Utalii Hotel	Nairobi	57	114	***
48	Marble Arch Hotel	Nairobi	41	57	***
49	Fahari Gardens Hotel	Nairobi	32	64	***
50	Villa Leone Guest House	Nairobi	51	54	***
51	Jacaranda Hotel Nairobi	Nairobi	128	256	**
52	Town Lodge	Nairobi	84	124	**
53	Central Park Hotel	Nairobi	80	100	**
54	After 40 Hotel	Nairobi	63	101	**
55	Summerdale Inn	Nairobi	60	75	**
56	Eton Hotel	Nairobi	58	116	**
57	Zehneria Portico	Nairobi	56	65	**
58	Kahama Hotel	Nairobi	47	51	**
59	West Breeze Hotel	Nairobi	26	34	**
60	Tea Tot Hotel	Machakos	54	66	**
	TOTAL		7112	10209	60

Source: www.tourismauthority.go.ke

APPENDIX III: TEST FOR HETEROSCEDASTICITY



Normal P-P Plot of Regression Standardized Residual
Dependent Variable: OP

