



INVENTORY PLANNING AND OPERATIONAL PERFORMANCE OF HOTELS IN PORT HARCOURT

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Article history:	Abstract:
<p>Received: January 28th 2024 Accepted: March 24th 2024</p>	<p>This paper assessed the impact of inventory planning on operational performance of Hotels in Port Harcourt. Specifically the study examined how inventory planning impacts timely service delivery, cost reduction and waste minimisation. The study was conducted on fifty-five (55) hotels within Port Harcourt which were selected using cluster sampling techniques. The sample size was 385; hence, seven copies of the research instrument were administered to each of the hotels purposefully. The study adopted a descriptive survey design and data was gathered via the use of 5-point Likert scale questionnaire. The validity and reliability of the survey instrument were guaranteed by conducting confirmatory factor analysis which comprised the assessment of discriminant validity, convergent validity, composite reliability and Average Variance Extracted. The hypotheses were analysed using Partial Least Square structural equation modelling (PLX-SEM). The result showed that inventory planning possesses a significant positive impact on operational performance of hotels in Port Harcourt showing that it could influence timely service delivery, cost reduction and waste minimisation to the tune of 84.8%, 87.8% and 82.4% respectively. Based on these results, it was concluded that inventory planning is a good predictor of operational performance of Port Harcourt hotels. Consequently, the study advised hotel management to embrace the integration of AI, data analytics and modern innovative technology that could predict future inventory requirement by analysing the historic data on previous inventory usage. This would encourage a proactive rather than reactive response to inventory needs thereby preventing unnecessary halt in daily operation and delay in service delivery. By so doing they would also have enough time to bargain fair prices with suppliers; thereby contributing to cost reduction.</p>

Keywords: Automated Inventory Management System, Material Requirement Planning, Procurement Planning, Re-order Planning, Waste Minimisation

INTRODUCTION

The hotel industry has experienced substantial growth in recent years due to enhanced operational efficiency. As an illustration, according to Statista (2024), the world's hotel industry was valued at approximately 1.21 trillion U.S. dollars in 2023 and is projected to expand at a compound annual growth rate (CAGR) of 5.5% to reach 5.8 trillion U.S. dollars in 2027. According to PricewaterhouseCoopers (2018), Investments in the industry surpassed \$3 billion US between 2014 and 2017.

It generated approximately 651,000 employment opportunities in 2016 and contributed approximately N1.7 billion (\$5.5 million), or 4.8%, of Nigeria's Gross Domestic Product (GDP) (Ekwujuru, 2016; Ndu & Ajao, 2020). The industry has continued to gain attention in Nigeria and many developing countries (Ibo & Akindutire, 2020). Nevertheless, the industry has witnessed several setbacks and disruptions; notable amongst which are Covid-19 pandemic, soaring inflation and toxic business environment (Ndu & Ajao, 2020; Oladimeji et al., 2020;



Tarek et al., 2020); these have enduring implication on the survival of businesses operating within the hotel industry due to strain on their operational performance. Operational performance is the assessment of organization's ability to achieve desired results while minimising the use of resources, including time, personnel, materials and cost (Porter, 1996). It implies using resources efficiently to benefit the company (Ajao, 2024). Rashmi et al. (2021) highlighted that operational performance facilitates waste reduction and the optimisation of value generation in a business organisation. It is the ability of organisations to achieve a degree of growth that many firms find difficult to attain. Thorne et al. (2023) states that desirable operational performance is attained by using different strategies, tools, and techniques that primarily aim to alter the current methods of job execution within the organisation. The use of several techniques to maintain operational performance is intended to yield essential benefits such as a decrease in lead time, improved inventory turnover, higher organisational performance, and a competitive advantage (Thorne et al., 2023; Yap & Skitmore, 2020). In Africa, several businesses collapse within few years of operations, one contributing factor to these failures is poor performance. For instance, South Africa experienced a business failure and collapse rate of over 70% within the initial five years of operation, in East Africa, approximately 70% of businesses collapsed within 24 months (Ojiambo, 2016), with Kenya alone accounting for about 46% of small and medium-sized enterprises (SMEs) closing within the first year of establishment, and an additional 15% in the following year (Kangethe, 2018). In Uganda, a similar trend is witnessed, with report showing that 30% of start-ups fails to survive beyond their third anniversary (Afunadula, 2018; Uganda Bureau of Statistics, 2018). This statistics is far scarier in Nigeria with about 80% start-up failure and collapse within five years of operations (Ajao, 2021). This challenge is not peculiar to the hotel business alone. It is however more felt in the industry due to the nature of the hotel operations which is heavily reliant on inventory and these inventories are more susceptible to pilfering, expiration and spoilage. This coupled with the reality of rising inflationary trend, high storage cost due to energy requirement and specialised equipment challenges have mounted pressure on managers in the hotel industry; calling experts and scholars to provide explanations for improving operational performance (Ibo & Akindutire, 2020). Possible explanations provided by scholars pointed

to inventory management (Eniola & Oshi, 2022; Ismail & Halima, 2022; Mitaire & Jones, 2022; Opusunju & Ndu, 2017) and managerial competence (Kamukama et al., 2017; Ndu & Alaboemi, 2017; Zacca & Dayan, 2018). However these studies were conducted outside the hotel industry and were concentrated on inventory management in general without specific emphasis on inventory planning. This has created a lacuna which this study sought to address.

Mac'Odo (2005) defines the planning component of inventory management as the process of deciding what items to stock, where to get them, and the most efficient and economical approaches for shipping, storing, and checking the acquired commodities. Inventory planning is the systematic approach which is tailored to efficiently oversee, control, and optimize a company's inventory. It encompasses the entire inventory life-cycle, from procurement and storage to monitoring usage, reordering when necessary, and minimizing instances of excess or obsolete stock. The nature of hotel business requires adequate inventory management to successfully improve operational efficiency; inventory planning forms one of the integral parts of inventory management (Ajao, 2024). However, a major problem observed is the low application of systematic inventory planning tools in the hotel establishments in Nigeria. Studies (Mitaire & Jones, 2022; Orobio et al., 2020; Rashmi et al., 2021; Timothy et al., 2013) have observed that hotels in developed economies such as Japan, China, the United Kingdom, and the United States have recorded significant level of success in the implementation of robust inventory planning systems to improve their operational performance over time. This has not been the case in Nigerian hotel industry; especially in Port Harcourt. Managers of hotel establishments still find it challenging to achieve inventory optimality as a result of insufficient inventory; a situation which often leads to under/over purchases, customer service delays, poor sensory quality of food, and higher operating costs. These challenges coupled with the problem of power supply, rising cost of fuel to power alternative energy sources and rising inflation for inventory items.

The resultant implication of these challenges connotes that having too much inventory would result to extra overhead cost on energy and this would ultimately affect profitability; the organisation also risk the possibility of pilferage, spoilage and inappropriate use of the inventory items. On the other hand, not having enough inventories could disrupt business operations, leading to longer waiting time for customers, poor quality of production and



disappointment of seasonal/unusual guest visit. Thus, striking the balance has been a major challenge to managers in hotel businesses; this is a duty-call to provide a systematic and streamlined inventory planning strategy and techniques (suitable for the industry) that would guarantee smooth business operation without jeopardising prospects for making profit (Shenvi, 2019). Addressing this challenge is a major deliverable this study set out to accomplish. To achieve this, the study proposed to investigate probable relationship between inventory planning and operational performance of hotels in Port Harcourt. Operational performance was measured by timely service delivery, cost reduction and waste minimization. Hence, the objective of the study was to investigate the relationship between inventory planning and these three measures of operational performance. To aid in realizing these objectives, the following research questions and hypotheses were put forward.

Research Question 1: What is the relationship between inventory planning and timely service delivery?

Research Question 2: What is the relationship between inventory planning and cost reduction?

Research Question 3: What is the relationship between inventory planning and waste minimisation?

H₀:1 There is no significant relationship between inventory planning and timely service delivery.

H₀:2 There is no significant relationship between inventory planning and cost reduction.

H₀:3 There is no significant relationship between inventory planning and waste minimisation.

Literature Review

The review of literature in this study was carried out under three major headings; theoretical framework, conceptual framework and empirical review.

Theoretical Framework

This study was predicated on Resource-Based View (RBV) theory. According to this theory, the key to exceptional performance is a company's resources and its capacity to turn them into a sustainable competitive advantage (Barney, 1991; Grant, 1991). The fundamental tenet of RBV theory holds that a company's resources determine its level of success. In order to develop and execute plans that maximise efficiency and effectiveness, businesses rely on their resources, which are described by Daft (1983) as a wide range of assets, competencies, organisational procedures, attributes, data, and expertise. The resources in question might be either physical (or "tangible") or non-physical (or "intangible"), according to Barney (1991). Since it is not practical to transfer productive resources across businesses without incurring costs, the RBV presupposes that (1) organisations have diverse distributions of resources and (2) this diversity may persist over time. The supporters of this theory hold that in order for a company to consistently improve their performance, the available resources must be utilised to garner distinctive qualities and core competences ahead of competitors (Ajao, 2024). Therefore, RBV theory is very relevant in this research since it posits that a company's long-term success is contingent upon its unique ability to effectively plan to optimise the use of their scarce resources to achieve desired objectives. One of such important resources in the hotel industry include inventory assets (Amahalu et al., 2018; Eniola & Oshi, 2022; Folajimi et al., 2020). It is believed that hotels would be able to improve their performance by using inventory planning capabilities if they possess these competencies.

Conceptual Framework

The major concepts and themes identified for this study comprised the conceptual review which has been captured in the figure 1. This is to enable the reader have a fair grasp and understanding of the concepts as they pertain to the study.





Figure 1: Conceptualized Diagram of the Study Variables

Source: Researchers' Conceptualisation Based on the Identified Variables of the Study

Concept of Inventory Planning

An inventory is a collection of valuable resources that are under the management of an organisation in order to fulfil its present and future needs (Almrdoef & Attia, 2021). Inventory, as defined by Verma (2013), comprises the variety of goods, commodities, and other economic resources that are retained or designated for the purpose of facilitating the efficient and continuous functioning of business operations. According to Kilonzo et al. (2016), inventory comprises valuable tangible products or stocks that are retained by organisations for the purpose of packaging, processing, or sale, despite not being completely utilised. The financial value and composition of inventory vary among businesses. In the hotel industry, inventory is a costly and valuable resource that must be adequately managed for seamless operations; to accomplish this, however planning would become essential. This is because inventory must be maintained in the system in order to satisfy anticipated demand and inadequate supply availability at the required time may lead to disruptions in operations, potential loss of sales, and delays in production. On the contrary, the stock of surplus inventory levels may lead to escalated expenses pertaining to storage, holding, and security (Ajao, 2024;

Opusunju & Ndu, 2017). Moreover, these commodities symbolise dormant resources that could have been utilised in a more efficient manner. Thus, in order for a business to achieve a balanced state of operational effectiveness and timely response, efficient inventory planning is vital (Ajao, 2024; Opoku et al., 2021). Inventory planning addresses the challenge of achieving and sustaining a balanced state between the quantity of products in stock and the degree of demand.

Planning is a complex process that typically focuses on evaluating the outcomes of current actions rather than future ones. Insufficient planning is a major contributing reason to failures in both the public and private sectors (Ajao, 2024). Inventory planning is a crucial aspect of procurement that may significantly enhance the operational efficiency and service quality of a company. Mac'Odo (2005) defines the planning component of inventory management as the process of deciding what items to stock, where to get them, and the most efficient and economical approaches for shipping, storing, and checking the acquired commodities. According to Simon and Njoku (2018), efficient inventory management is essential for maximising a company's profitability and



productivity, as well as impacting its overall performance. Efficient inventory management requires thorough planning and control methods that are consistently evaluated, even in the absence of any problems. Inventory planning is the systematic approach to overseeing the procurement, storage, usage and control of inventories ahead of time in order to optimize a company's inventory. It encompasses the entire inventory lifecycle, from initiation, procurement and storage to monitoring usage, reordering when necessary, and minimizing instances of excess or obsolete stock. Keeping just the right amount of inventory on hand to fulfil consumer demand, minimize expenses, and prevent problems like overstock or stock-outs is the major goal of inventory planning. Inventory planning encompasses the following;

Procurement Planning

Procurement planning is an institutional or corporate procedure utilised strategically to coordinate and schedule purchasing endeavours within a specified period of time. Procurement planning is commonly undertaken during the budgeting phase with the primary aim of attaining cost savings, improving operational efficiency, and ultimately enhancing profitability via proactive strategizing. A procurement plan serves as a mechanism for budget execution and ought to be developed by the user departments in order to safeguard against or minimise budget overspending. It is imperative that the budget process incorporates all procurement strategies in a manner that is consistent with corporate goals and in adherence to procurement regulations (Ajao, 2024). Preliminary procurement planning lays the groundwork for all subsequent procurement activities. It help to identify an organization's purchasing needs, including financial and time constraints which ensures that operational demands are met in an efficient manner. Insufficient procurement planning could substantially lead to downfall of organisations because biased and incorrect procurement decision might result from inability to properly evaluate the procurement needs and processes before dabbling into making decisions; and this could have severe financial consequences on the purchasing organisation.

Inventory Demand/ Material Requirement Planning: The first step in managing inventory is making predictions about when items will be in demand. When this done effectively the quantity of inventory on hand is

adequate, leading to enhanced efficiency in item delivery to customers and a decrease in costs (Davis, 2016). To achieve this, one must examine past sales figures, current market tendencies, and client orders (Krajewski et al., 2019).

Reorder Point Planning: The inventory level that triggers a reorder is called the reorder point. In most cases, it is configured to receive fresh supply exactly before it runs out, taking into account factors like demand fluctuation and lead time (Chopra & Meindl, 2019).

Safety Stock Planning: Safety stock is the supplementary inventory reserved as a buffer; should there be unforeseen fluctuations in demand or interruptions in supply. Its purpose is to prevent stock-outs (Simchi-Levi et al., 2019). Effective management of lead times is crucial to ensure that inventory arrives when needed. This necessitates proper planning to ensure coordination and communication with suppliers to minimize lead times (Jacobs & Chase, 2017).

Concept of Operational Performance

Operational performance reinforces the core strategic objective of any business organisation. Attaining increasing operational performance is crucial for enhancing customer satisfaction and optimising shareholder profit. Therefore, improving operational efficiency is a key objective for businesses. Operational performance, also known as according to Rashmi et al. (2021), is the effective coordination of all operational units within an organisation to guarantee their collaborative efforts in attaining the major business goals. The concept concerns the assessment of organisational efficiency, reducing the cost of each unit, devising strategies for production and processes, and improving the overall output and productivity of the business firm (Gill et al., 2014). Operational performance measures the extent to which an organisation can reduce waste and maximise value creation. The manner to which an organization is able to accomplish its goals via the efficient use of its resources is known as operational performance (Ajao, 2024). For the purpose of this study, operational performance is discussed with three measures; namely timely service delivery, cost reduction and waste minimization.

Timely Service Delivery: Timeliness refers to delivering a task or function at an appropriate, suitable or



expected time. It is the ability to meet deadlines, adhere to schedules, or perform actions within a time-frame that is considered reasonable. In a typical hotel business context, timeliness can refer to the ability to deliver products or services to guest promptly according to the scheduled arrangement (Xie & Yan, 2013). Timely delivery is a crucial element of guest satisfaction and can significantly impact a guest's overall experience. Hotels that consistently provide services and products in a timely manner will be able to demonstrate their commitment to guests' comfort; thereby contributing to a positive guest experience (Kandampully, 2006; Xie & Yan, 2013).

Cost Reduction: Cost reduction is a business strategy and management process aimed at decreasing the expenses and expenditures incurred by a company to produce goods or provide services. Maximising profits is the fundamental goal of cost reduction strategies, which aim to lower expenses without sacrificing product or service quality (Hongren et al., 2015). Cost control is often confused with cost reduction. Cost control focuses on managing and restraining costs to prevent them from exceeding budgeted levels, while cost reduction involves actively lowering the actual costs incurred (Drury, 2017; Hilton et al., 2019). Costs need to be acceptable in a competitive business, and management has to make sure resources are used efficiently so they can achieve the requirement. Keeping costs in check requires setting and sticking to performance metrics that are already known and accepted. Therefore, in order for a business to monitor and eliminate wasteful spending, cost reduction and control are crucial. The goal of cost reduction is to reduce the unit costs in a consistent and measurable way, while ensuring that quality remains unimpaired. Therefore, the concept of cost reduction refers to tangible or authentic savings in production as well as from the associated methods and procedures. In order to maintain a competitive edge, particularly in the hotel industry, it is essential for organisations to incur reasonable costs and have management ensure the prudent and efficient utilisation of resources to meet the established standards (Ajao, 2024).

Waste Minimisation: This is the capacity and practice of minimising waste produced throughout the manufacturing process. Frequently, the most economically viable, environmentally sustainable, and cost-effective approach to waste management is to prevent the need to confront the issue. Managers

consider waste reduction to be the cornerstone of the majority of waste management strategies. The discussion and practice of waste reduction has attracted reasonable attention across the globe in recent years due to its immense contribution to cost reduction and a more sustainable environment cost containment and environmental sustainability (Ndu & Ajao, 2019; Ohno, 1988). Waste minimization pertains to the capacity of hotel organisations to reduce the level of waste materials and the ecological consequences linked to their disposal. In the hospitality industry, waste reduction is a critical component of environmental responsibility and sustainability. Thus it is imperative for hotel managers to seek tenable strategies and initiatives to reduce waste generation, promote material reuse, encourage recycling, and ensure responsible waste disposal within their establishments (Ajao, 2024).

Empirical Literature

The study conducted by Eniola and Oshi (2022) aimed to examine the impact of inventory management on manufacturing firms operating in Nigeria. The purpose of their research was to investigate the viability of employing inventory management strategies as a method to attain a competitive advantage across various sectors, including manufacturing. This study, which was exploratory and theoretical in nature, encompassed a comprehensive assessment of inventory management and its influence on competitive advantage. The study ascertained that organisations with the objective of attaining cost leadership and differentiation as a strategic approach must implement an inventory management system that is exceptionally effective and efficient. The findings prompted recommendations that manufacturing companies adopt a proactive stance towards production challenges, create a specialised department for inventory management, and investigate the feasibility of implementing a scientific methodology for inventory management. Another investigation was undertaken by Mitaire et al. (2022) to examine the correlation between inventory management and the performance of Nigeria-listed manufacturing firms. The objective of their investigation was to assess the intermediary role that cost of capital plays in the connection between inventory management and the performance of businesses. Forty listed manufacturing enterprises between 2010 and 2020 comprised the research sample. The data analysis in this study was conducted using a structural equation model and panel ordinary least square regression. The findings



suggested that inventory management had a negligible effect on the operational effectiveness of manufacturing companies in Nigeria. Moreover, it is important to note that although the cost of capital exerts a substantial and advantageous impact on corporate performance, it failed to function as a moderating element of the study. Furthermore, it is imperative that managers proactively pursue more cost-effective avenues of financing and implement safeguards to prevent the diversion of inventory-related loan funds for alternative purposes. Rashmi et al. (2021) argued in their study that inventory management procedures (IMP) are extensively employed within organisations to supervise and control inventory. In an effort to quantify the performance of steel-producing companies, they investigated the effects of inventory automation and distribution turnover on operational efficiency and competitiveness (as measured by inventory planning management criteria). Data was collected from prominent administrators from five manufacturing companies, all of which were specifically selected and situated in the state of Odisha, India. In adherence to the study's procedures, SEM and the Kolmogorov-Smirnov test was adopted for data analysis. The results of the study proved that IMP significantly impacts the performance of organisations. The study offered valuable insights to manufacturing sector by recommending the integration of automation in inventory planning and control.

A study was undertaken by Ibo and Akindutire (2020) to examine the correlation between inventory management and the profitability of publicly traded hospitality organisations in Nigeria. By means of a longitudinal research design, the financial statements of a subset of five listed hotel companies in Nigeria were analysed for this study. Panel data estimation was the methodology employed in this study. The dataset being examined spans a decade, specifically from 2008 to 2017. Descriptive statistics were employed to describe the secondary data while correlation and regression analysis were utilised to test the hypotheses at a significance level of 0.05. The research found that publicly listed Nigerian hospitality firms' profitability had a correlation with inventory management. Additionally, it revealed a noteworthy positive connexion between inventory management and dividend per share (DPS), in addition to a considerable correlation between inventory management and earnings per share (EPS). This indicates that cost control and inventory management practices are

highly correlated. Profitability may be optimised through the systematic reduction of expenses to their core. The study's results show that publicly listed Nigerian hospitality firms' profitability is significantly impacted by inventory management. According to the study's results, hotel establishments may boost their bottom lines by optimising their inventory management strategies. Relatedly, Listed manufacturing enterprises in Nigeria's south-East area were the focus of a research by Mbah et al. (2019) that aimed at establishing a connection between inventory management and operational performance. Through an examination of their connection with several aspects of inventory planning management, the study aimed to assess the operational performance of manufacturing organisations. Inventory cost, the just-in-time method, materials requirement planning, and strategic supplier alliances were the components that made up these factors. A questionnaire was used to conduct the assessment. A total of 371 copies of the questionnaire were distributed to 538 respondents in four quoted manufacturing firms in the southeast area of Nigeria. All 371 surveys were filled out to the satisfaction of the researchers and were deemed relevant to the study. The acquired data was subjected to analysis using regression technique. Findings show that inventory cost, just-in-time approach, materials requirement planning, and strategic supplier alliance were significantly and meaningfully correlated with operational performance of manufacturing companies in south-East Nigeria. The authors recommended strategic supplier alliances, just-in-time production, materials need planning, inventory cost reduction, and other inventory management strategies to manufacturing enterprises in southeast Nigeria; since the operational performance is significantly impacted by these processes. In the same vein, Abuya and Shale (2018) conducted a study to ascertain the effect of inventory management strategies on the operational effectiveness of the hotel industry. The research study employed a descriptive methodology, and the participants comprised 400 supply chain officers in hotels situated in the Central Business District of Nairobi. The correlation between procurement performance and inventory management methods in the hotel industry was examined using a regression model. The results of the study indicated that inventory management practices were responsible for 76.90% of the variance in hospitality industry performance. The research findings indicated the necessity of performing yearly supplier planning and evaluation and guaranteeing punctual payment. It was



recommended that organisations should offer formal procurement training and recruit personnel possessing the necessary expertise. Since procurement planning frequently constitutes the initial stage of the procurement process, it is imperative for the hospitality industry to develop the proficiency of its personnel in developing budget-compliant, high-quality procurement strategies. Additionally, the report suggested that hotel industry participants invest heavily in the automation of their critical inventory management processes to ensure procurement processes are transparent and competitive.

Empirical investigations showed that numerous studies have been conducted on the impact of inventory management on firm performance. However, these studies were largely conducted in the manufacturing sector. Another notable lacuna in literature points to the fact that studies of this nature focused on inventory management in general without paying specific attention on functional areas like planning. Furthermore, the researchers focused on the relationship between inventory management and financial indicators (Abubakar et al., 2019; Folajimi et al., 2020). More so, most of these studies were conducted primarily in locations outside Port Harcourt. To the best of the researchers' knowledge literature on inventory planning is scanty in Port Harcourt (Eniola & Oshi, 2022), particularly within the hotel industry. It is more worrisome to discover that there was a neglect of this discussion in hotel establishments whose operations are largely reliant on inventory items with short shelf life. Only a handful of these studies (Abuya & Shale, 2018; Ibo & Akundutire, 2020) were on inventory management in the Nigerian hospitality industry, and were mainly focused on financial performance; while operational performance was left out of the picture. Hence there is limited insight in extant literature on the subject matter which forms the rationale for this study. Therefore, this paper sought to empirically investigate the impact of inventory planning on the operational performance of hotels in Port Harcourt.

METHODOLOGY

This study was designed using the descriptive survey method. Primary data was obtained from the use of 5-point Likert scale questionnaire. The target population comprised registered hotels in Port Harcourt which

according to Hotels.ng (2023) were two hundred and eighty (280) in number. To trim this down to a sizeable number of 55 hotels, the Krejcie and Morgan's (1970) table for sample size determination at 5% level of significance was used. These hotels were selected using cluster sampling technique to include hotels that are proximally located within the Aba road, Ikwerre road, Government Residential Areas, Stadium Road, Old Port Harcourt town, Ada-George, and Diobu areas of Port Harcourt. Thereafter seven copies of the survey instrument were administered to each of these hotels, totalling three hundred and eighty-five respondents (385). Using the purposive sample technique, the respondents were restricted to participants deemed knowledgeable and experienced in the subject matter. Hence, the management teams from the many areas of the hotel that rely on inventory items for daily operations such as bar, kitchen, store, housekeeping and restaurant were chosen.

In order to ensure the instrument's validity, professionals in the field examined copies of the instrument and offered feedback. These suggestions were considered and included in the final version of the questionnaire, guaranteeing its face validity. Confirmatory factor analysis (CFA), was conducted to ensure the instrument met the criteria for convergent and discriminant validity, as suggested by Bagozi et al. (1991) and Hair et al. (2014). On the instrument's reliability, Cronbach's alpha value and composite reliability were computed. Data analysis was performed using Partial Least Square Structural Equation Modelling (PLS-SEM), which is a multivariate data analysis approach that searches for linear correlations between many independent and multiple dependent variables (Hair et al., 2014). This method was adjudged appropriate because, it permits estimation of complex models with diverse constructs and structural pathways.

RESULTS AND DISCUSSIONS

Based on the sample size, 385 copies of the research instrument were distributed; out of which three hundred and forty-nine retrieved copies (349) were retrieved, amounting to 90.6% response rate. Out of this number, three hundred and two (302) were found to be useful for the analyses, resulting to 78.4% valid response rate. The demographic details of the respondents have been presented in the following figures:

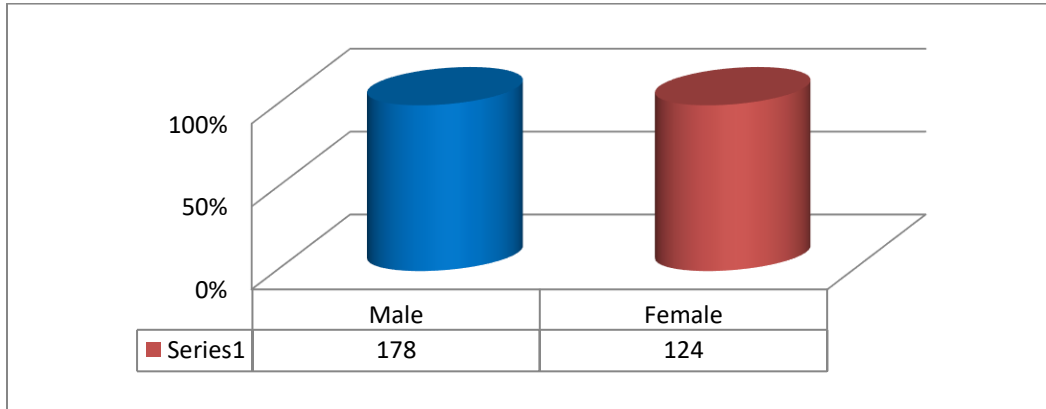


Figure 2: Gender of the Respondents

Source: Field Survey, 2024

Figure 2 shows the gender distribution of the respondents. The result revealed that male respondents constitute 59% of the sample size with 178 counts while the number of female respondents amounted to 41.0% with the count of 124. This result showed that this study is gender balanced since both genders are fairly represented.

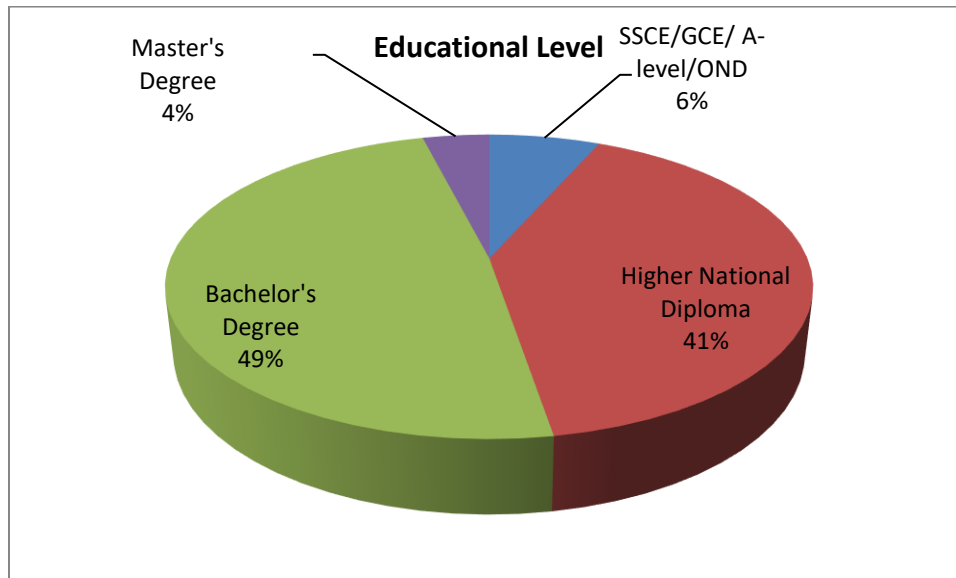


Figure 3: Educational Level of the Respondents

Source: Field Survey, 2024

Figure 3 shows the educational qualification of the respondents which indicated that 20 persons (6.7%) have high school qualification, 128 respondents accounting for 40.8% have Higher National Diploma (HND), 147 respondents representing 48.8% have bachelor's degree; while 9 respondents representing 4% have master's degree. The result clearly showed that most of the respondents have college degree and above; hence the respondents are expected to understand the basic theme of discussion in this study.

Years of Experience

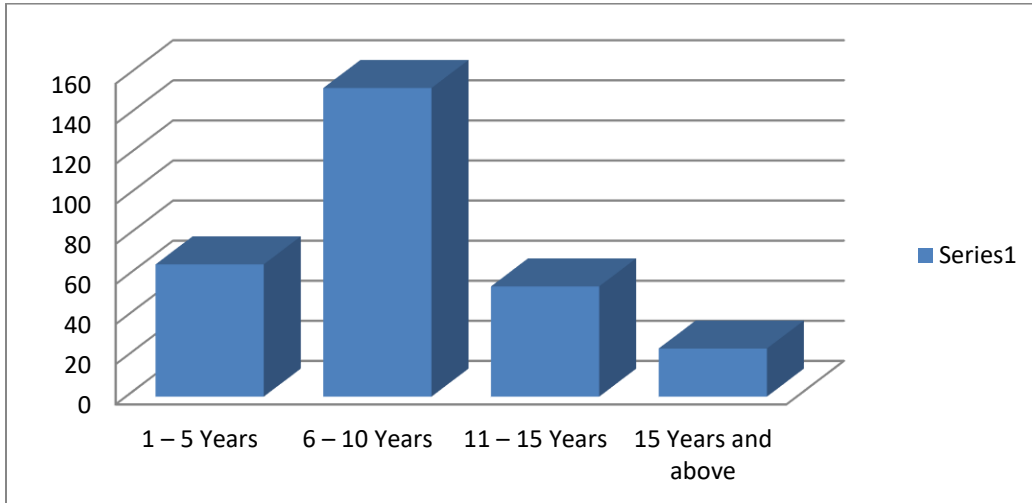


Figure 3: Years of Experience of the Respondents

Source: Field Survey, 2024

Figure 4 showed the respondents' relevant years of experience in the hotel industry. The result revealed that 66 respondents amounting to 22% have 1-5 years of experience, 154 (51%) have between 6-10 years of experience, about 18% of the respondents counting 55 have 11-15 years of experience while only 24 respondents representing about 9% of the respondents have above 15 years of experience in the hotel industry. The result portrays that respondents have adequate level of industry experience and would possess fair knowledge of inventory management being practised in their hotel organisations.

In order to ascertain the validity, reliability of the research instrument, confirmatory factor analysis (CFA) which is an integral part of a structural equation modelling (SEM) was conducted. Firstly, the researchers examined the factor loadings of each questionnaire items and entries with factor loadings less than 0.7 were eliminated in line with the acceptable recommendations (Bagozi & Yi, 2012; Hair et al., 2017; Ndu, 2018). In accordance with this procedure, these items were removed one after the other, beginning with the one that had the lowest loading until the requirements were satisfied. The results may be seen in Table 1.

Assessment of measurement instrument/model

Table 1: Descriptive Statistics and Assessment of Measurement Model

Constructs	Item Scale	Mean	S.D	Loadings	Cronbach Alpha	CR	AVE	Sq. Root of AVE
Inventory Planning	We make plans on when and how to stock inventory.	2.747	0.770	0.932	0.946	0.964	0.817	0.904
	We adopt inventory management techniques to envisage expected inventory demands.	2.818	1.153	0.951				
	*We often stock more than we needed for production	3.596	0.665	0.849				
	Forecasting and replenishment helps in making predictions and estimation for future inventory demands.	3.475	0.936	0.921				
	We have more than one supplier for inventory items.	3.300	1.187	0.958				



	We plan for buffer stock in case of unforeseen sales volatility.	3.440	0.982	0.802				
Timely Service Delivery	Our service delivery time has improved significantly.	3.80	.918	0.902	0.725	0.916	0.688	0.839
	*We often experience delay due to material unavailability.	3.59	.982	0.776				
	We maintain some stock in order to be on a safe side.	3.54	1.071	0.761				
	We a maximum waiting time to attend to customers' demand	3.16	1.141	0.879				
	We mostly meet-up with the time limit set for service delivery	3.51	.884	0.819				
Cost Reduction	*Our operating cost has increased recently.	3.87	.693	0.811	0.842	0.907	0.659	0.812
	*We often stock more than we needed for production.	3.79	.824	0.728				
	*We incur high cost of energy to preserve inventory.	3.68	.659	0.714				
	We practice lean approaches towards inventory management to reduce operations cost.	3.86	.722	0.802				
	*We often spend more on transport because our orders are frequent	3.67	.631	0.980				
Waste Minimisation	*Our raw materials often get spoilt in the store.	3.80	.918	0.702	0.801	0.896	0.632	0.795
	We have standard recipe for inventory usage.	2.36	.690	0.730				
	We return unused or excess materials back to the store.	3.57	.934	0.814				
	We check inventory condition regularly.	3.64	.919	0.809				
	We have waste management performance indices.	3.54	1.013	0.905				

Source: Researchers' Computation, 2024.

The measurement assessment result showed in table 1 revealed high mean score for the questionnaire items, suggesting agreement with the questions by the respondents. The standard deviation rightly assessed the spread of the responses, making it acceptable. This implies that the sample size was reflective of the population being studied (Dauglas & Marting, 2005; Mary, 2008). Furthermore, the convergent and discriminant validity of the study were confirmed by results; as the CFA analysis showed that the factor loadings of all the item

scales exceed the minimum benchmark of 0.70; aligning with Tabachnick and Fidell (2007). Similarly, the average variance extracted (AVEs) recorded high values that exceeded the 0.5 threshold of Bagozzi and Yi (2012); and Hair et al. (2014); affirming the adequacy of the convergent validity. The composite reliability (CR) for inventory planning, timely service delivery, waste minimisation, and cost reduction equally reported high values of 0.964, 0.916, 0.907 and 0.896 respectively. These values guaranteed the instrument's reliability since



they exceeded the 0.8 minimum value advanced by Fornell and Lacker (1981). The same trend was exhibited by the Cronbach alpha values which reported values

(0.946, 0.725, 0.842 and 0.801 respectively) exceeding the minimum score of 0.7 advocated by Nunnally (1978).

Table 2: Correlation Matrix Showing the Discriminant Validity of the Study Constructs

Constructs	Inventory Planning (IP)	Timely Service Delivery (TDS)	Cost Reduction (CR)	Waste Minimisation (WM)
IP	0.904			
TDS	0.682	0.839		
CR	0.663	0.623	0.812	
WM	0.325	0.759	0.532	0.795

***The Square root of Average Variance Extracted (AVEs) on the Diagonal**

Source: Researchers' Computation, 2024

Table 2 shows the correlation matrix of the constructs. Specifically, the inter item correlations were shown; as well as the square roots of AVEs which were placed on the diagonal. The inter item correlations show that specific items are more related to their own construct than to other items. It equally disclosed that the degree of linear association between each pair of the variables.

The square roots of AVEs placed on the diagonal are greater than their respective loadings and associated correlations. This guaranteed the uniqueness of every individual construct as they do not consist of identical indicator items; affirming the adequacy of the discriminant validity (Hair et al., 2014; Ndu & Ajao, 2019 & 2020).

Assessment of Structural Model and Hypotheses Testing

Table 3: Structural Path Model and Hypotheses Results

S/N	Hypothesized Path	Path Coefficient (β)	P-Value	Standard Error	T Statistics	Decisions
H_{0:1}	IP → TSD	0.921***	0.000	0.096	4.552	Not Supported
H_{0:2}	IP → CR	0.937***	0.000	0.082	3.735	Not Supported
H_{0:3}	IP → WM	0.903***	0.000	0.085	6.820	Supported

***P<0.001 **P<0.01 *P<0.05

Source: The Researchers' Computation (2024) from Path Analysis Result (Aided by SMART PLS 4.0.9.9).

The outcomes of the structural model and hypotheses testing are presented in Table 4. The result indicated that a significant relationship exists between the study's constructs. It demonstrated that each path representing a different hypothesis in the structural equation model has a significant positive relationship. More precisely, the analysis unveiled that inventory planning exhibits a substantial positive correlation with timely service

delivery, cost reduction and waste minimisation as evidenced by the beta (β) values of 0.921, 0.937, and 0.903, respectively. As indicated by their respective R² values, these results suggest that inventory planning can influence timely service, cost reduction and waste minimisation by as much as 84.8%, 88.8%, and 81.5% respectively. In addition, the outcome demonstrated a negligible degree of standard error, confirming that the

selected samples sufficiently represented the entire study population (Dauglas & Marting, 2005; Mary, 2008). The

outcome was additionally illustrated in the study's structural model.

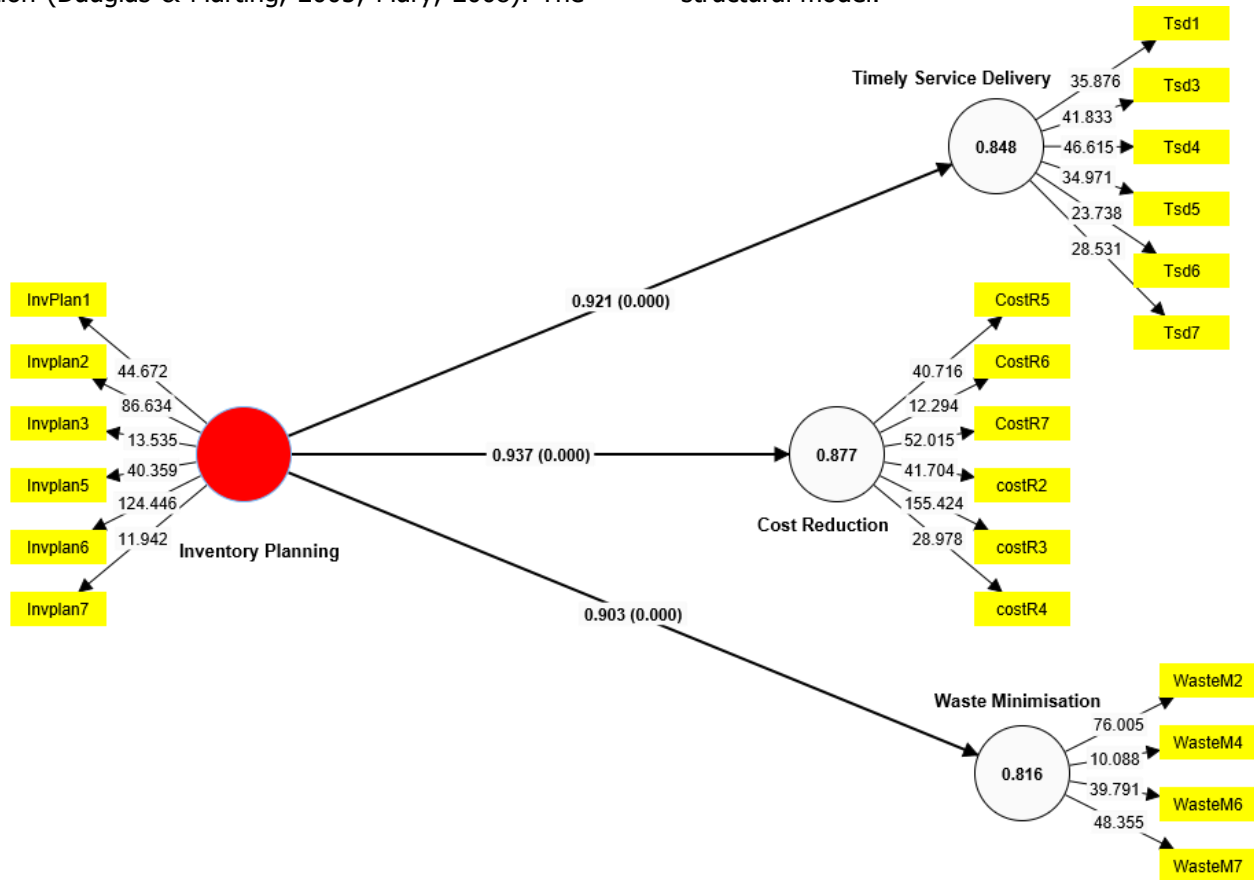


Figure 5: Structural Path Model for Inventory Planning and Operational Performance

Source: SEM Analysis Result Output, 2023; Aided by SMART PLS Version 4.0.9.9.

DISCUSSION OF FINDINGS

The evaluated the impact of inventory planning on the operational performance of hotels in the Port Harcourt. The research aimed to ascertain the impact of inventory planning on key indicators of operational performance, which included on-time service delivery, cost reduction and waste reduction minimisation. This gave rise to three specific research objectives and hypotheses. These hypotheses were tested using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results revealed a statistically significant positive relationship between inventory planning and operational performance, as shown by the beta (β) coefficients of 0.921, 0.937, and 0.903 for timely service delivery, cost reduction and waste minimization respectively. Thus it was found that inventory planning has a momentous positive influence on operational performance; and could

engender improved service delivery time, cost reduction and waste minimisation. A possible rationale for this result is the reality that well planned inventory system could envisage probable future challenges and make provisions for managing them ahead of time for optimal outcome. Therefore this finding has placed a burden on hotel leadership to prioritise inventory planning as an integral function especially due to the dynamic nature and volatility of sales prevalent in the industry. Furthermore, these findings are in agreement with previous empirical evidences. For instance Efficient and effective inventory management is a prerequisite for companies seeking to achieve cost leadership and distinction, according to research by Eniola and Oshi (2022). In fact they recommended based on their findings that management must be proactive on issues relating to inventory management. Similar findings was also recorded by other



scholars such as (Mitaire et al. (2022) and Rashmi et al (2021) who advocated that managers must be intentional to intensify efforts to managing inventory experience more positive impact on profitability; specifically in the hospitality industry (Ibo & Akindutire, 2020). Furthermore, studies conducted by Mbah et al (2019) and Abuya and Shale (2018) gave similar discoveries and strongly argued that inventory planning in terms of strategic supplier partnership materials requirement planning and inventory control planning is essential to improving operational efficiency.

CONCLUSIONS AND RECOMMENDATIONS

The outcome of this study clearly demonstrated that inventory planning has a substantial impact on operational performance of hotels in Port Harcourt. Based on the findings of this research, it is imperative that hotel management prioritise inventory planning in an effort to enhance operational performance. This underscores the necessity for implementing rigorous planning strategies that would effectively guarantee the minimization of inventory wastage and costs while maintaining the highest standards of service quality and timely service delivery to guests. This study has demonstrated that inventory planning extends beyond mere inventory budgeting. It encompasses the integral processes of determining optimal inventory level across the inventory life cycle within the hotel establishment. Therefore the study appeals to all concerned personnel within the hotel organisation especially the operations managers, procurement officers, inventory accountant and consultants, must diligently make adequate inventory planning strategy that best suit their business operations. The following specific recommendations were put forward;

1. The hotel managers are advised to embrace the integration of AI, data analytics and modern innovative technology that could predict future inventory requirement by analysing the historic data on previous inventory usage in the hotel organisation.
2. Hotel establishment are encouraged to embrace automated inventory management system which could promptly notify them whenever an inventory item is being used up. The system can also make easier for them to adequately set buffer stock level and make replenishment orders as at right time.

3. Managers of hotel organisation should develop and implement inventory planning and budgeting as part of their core business strategies. This would encourage a proactive rather than reactive response to inventory needs thereby preventing unnecessary halt in daily operation and delay in service delivery.
4. Hotel manager as part inventory planning are advised to implement dynamic pricing strategies and forecasting tools to predict demand fluctuations and thereafter develop flexible inventory strategic plan that could adapt to seasonal fluctuations. By so doing they would have enough time to bargain fair prices with suppliers; thereby contributing to cost reduction
5. The research suggests that hotel management should adopt scientific inventory planning techniques and tools to help determine inventory requirements and adequately plan their storage ahead of time.
6. The study also urged hoteliers to cultivate open communication and strong relationships with reliable suppliers. They should make adequate plans to diversify suppliers in order to mitigate risks and negotiate favourable terms.

LIMITATIONS AND SUGGESTION FOR FUTURE STUDY

The use of self-reported data for analysis could result in likelihood of researcher and respondents' biases as well as avoidance to some questions on the survey. This poses a challenge which can be regarded as limitation. However, it was mitigated through a thorough process of data cleaning such that all missing values and outliers are expunged from the data set and do not form part of the analysis. Also the researcher adopted confirmatory factor analysis which encompasses assessing the factor loadings, convergent and discriminant validity, reliability and test of instruments' internal consistency as well as model fit test to ascertain the suitability of the research instrument, data and operational model. The researcher ensured that a satisfactory assessment was arrived at before proceeding to data analysis.

Another notable limitation to this study was its limited scope to hotels within Port Harcourt Metropolis. This may have affected the generalizability of the findings to the hotel and hospitality industry in River State and Nigeria at large. However the fact that the study was based on large hotels in Port Harcourt which may share similar



characteristics with hotels in other locations makes this limitation not to pose any serious challenge on the generalizability of the findings. More so, the data collection involved several functional departments within the hotels that are largely involved in inventory usage and control. Since knowledge is continuum; future researchers are encouraged to consider the following in their future research endeavours;

1. This study suggest to future researcher to adopt qualitative analysis and field observations by allowing respondents share their experience and challenges as regards inventory planning in the hotel industry. This would enable researcher have deeper insight of the situation and proffer feasible recommendations.
2. Rather than a cross-sectional method adopted for this study, future studies of this nature could consider adopting a longitudinal design with a lot more time allotted to focus on a particular major hotel in Nigeria. This will enable them understand the dynamics and interplay of the phenomena under consideration within an organisational context.
3. The hospitality industry comprise of other establishment like restaurants, bars, bakeries, cafeterias etc. which are also heavily reliant on inventories to functions effectively. Future study could consider replicating similar study in these organisations within and outside Port Harcourt.

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World Bulletin of Management and Law (WBML)
Available Online at: <https://www.scholarexpress.net>
Volume-32, March -2024
ISSN: 2749-3601

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