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Technology-Driven Financial Services and the Profitability of Five-Star Hotels in Nairobi City County, Kenya

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Abstract

The hotel industry is a critical component of Kenya's economy, with Nairobi City County hosting the highest concentration of five-star hotels. Between 2020 and 2024, these hotels experienced a marked decline in profitability. This study examined the effect of technology-driven financial services on the profitability of five-star hotels in Nairobi. Specifically, it investigated the impact of online booking platforms, mobile banking solutions, fintech-based loyalty programs, and automated invoicing systems. Anchored on Transaction Cost Theory, Innovation Diffusion Theory, and the Technology Acceptance Model, the study employed a descriptive research design targeting Finance, IT, and Customer Service departments across all eleven five-star hotels in Nairobi, yielding 62 respondents. Data were collected via structured questionnaires and analyzed using multiple regression techniques. Findings revealed that online booking platforms ($\beta = 0.843$, $p < 0.05$), mobile banking solutions ($\beta = 1.333$, $p < 0.05$), and fintech-based loyalty programs ($\beta = 0.802$, $p < 0.05$) significantly and positively influenced profitability, with mobile banking showing the strongest effect. Automated invoicing systems had a positive but statistically insignificant effect ($\beta = 0.136$, $p = 0.382$). The study concluded that integrating digital financial technologies, particularly mobile banking, online booking platforms, and loyalty programs, enhances hotel profitability. Recommendations include improving booking platforms, prioritizing mobile banking investments, and developing personalized loyalty programs integrated with other fintech tools to boost customer retention and long-term financial performance.

Keywords: *Technology-Driven, Financial Services, Profitability, Five-Star Hotels, Nairobi City County*

1.0 Introduction

The global hotel industry represents a cornerstone of economic development, contributing substantially to employment creation, tourism expansion, and revenue generation across nations (Smith et al., 2022). In 2022, the worldwide hotel market achieved a valuation of USD 822 billion, with steady growth projections anticipated for subsequent years (World Tourism Organization, 2023). Profitability within this sector is influenced by numerous factors, among which technology-driven financial services have emerged as critical determinants of success. Innovations including online payment systems, mobile banking platforms, and digital reservation technologies have fundamentally transformed hotel operations by improving transaction efficiency and enhancing customer experiences (Johnson & Lee, 2021). These financial technologies enable hotels to reduce operational costs, access international markets more effectively, and optimize revenue generation strategies, thereby strengthening overall profitability and competitive positioning in increasingly dynamic hospitality markets (Kumar et al., 2023).

The COVID-19 pandemic profoundly disrupted hotel profitability across all global regions, though recovery trajectories have varied significantly by geography and market segment. European hotels experienced profit per room declines of approximately 60% in 2020 compared to 2019 levels, though profitability subsequently rose by 45% by 2022 through increased travel demand and operational efficiency improvements (European Hotel Market Report, 2022; European Travel Commission, 2022). Asian hotels faced similarly steep declines, with profit per available room dropping 55% in 2020, yet recovery trends emerged with 30% profitability increases by mid-2023, particularly in China, Japan, and Singapore (Asia Pacific Hotel Investment Conference, 2022; Jones Lang LaSalle, 2023). African hotels suffered the most severe impacts, with profitability declining 70% in 2020, though gradual recovery occurred with 35% improvement by late 2022 (African Hotel Investment Forum, 2021; Africa Travel and Tourism Association, 2023). Mobile payment systems, automated booking platforms, and cloud-based financial management tools proved instrumental in facilitating these recovery processes across all regions (Jones & Clarke, 2021; Peters et al., 2023; Tan & Chang, 2023; Wang et al., 2022).

Kenya's five-star hotel sector mirrors these global trends while demonstrating unique characteristics shaped by local market conditions and technological adoption patterns. Profitability declined 50% in 2020 due to pandemic-related tourism disruptions but began recovering in 2021 with a 25% increase driven by resumed domestic and international travel (Kenya National Bureau of Statistics, 2021; Tourism Research Institute, 2022). The adoption of mobile payment platforms, particularly M-Pesa, alongside digital booking systems and online financial management tools, has been central to operational efficiency enhancement and customer satisfaction improvement (Kariuki et al., 2023). By 2023, profitability had improved by 40%, with projections suggesting potential returns to pre-pandemic levels by 2024 (East Africa Hotel Market Report, 2023). These technology-driven financial services have enhanced payment processing capabilities, improved customer experiences, and supported sustained profitability improvements throughout Kenya's luxury hospitality sector, demonstrating the strategic importance of digital innovation adoption (Kariuki et al., 2023).

Profitability measurement in hospitality contexts requires careful selection of metrics that capture both operational efficiency and financial performance across multiple dimensions (Ross et al., 2021). Net Profit Margin assesses how effectively firms convert revenue into profit after accounting for all expenses, thereby illustrating cost management effectiveness and pricing strategy efficiency (Ross et al., 2021). Return on Assets evaluates the efficiency of asset utilization

in generating earnings, offering insights into how well hotels employ their physical and financial resources (Johnson & Adams, 2023). Return on Equity examines profitability relative to shareholders' investments, revealing the degree to which firms generate value for investors and stakeholders (Gibson & Black, 2022). The hospitality sector often relies on specialized metrics such as Revenue per Available Room and Gross Operating Profit per Available Room, which reflect both occupancy levels and operational efficiency simultaneously, providing comprehensive views of hotel financial performance (Johnson & Adams, 2023; Peters et al., 2023).

Technology-driven financial services, commonly termed fintech, encompass digital tools and technological solutions designed to improve efficiency, speed, and accessibility of financial operations within organizational contexts (Kumar et al., 2022). These services include online payment systems enabling seamless transactions, mobile banking platforms facilitating remote payment management, automated invoicing systems ensuring timely and accurate billing, and technology-enabled loyalty programs incentivizing repeat customer engagement (Smith & Richards, 2021; Zhang et al., 2023; Kumar & Patel, 2022). In hospitality sectors, integration of these tools has transformed financial transaction management, streamlined operational processes, and enhanced service delivery capabilities (Johnson & Lee, 2021). Hotels can now automate reservations, process payments in real time, track customer preferences through integrated digital platforms, and manage financial reporting more effectively (Tan & Chang, 2023). Collectively, these innovations drive operational efficiency improvements, enhance revenue generation capabilities, and promote customer satisfaction, thereby contributing significantly to improved profitability outcomes (Johnson & Lee, 2021; Kumar & Patel, 2022).

Kenya's hotel industry has evolved substantially since independence, progressing from basic coastal hospitality services to sophisticated luxury establishments serving international clientele (Kamau & Waudu, 2022; Cytonn, 2022). Nairobi City County hosts eleven five-star hotels, including Villa Rosa Kempinski, Fairmont The Norfolk, Radisson Blu, and others, distinguished by luxury accommodations and premium service offerings (PwC, 2021; Cytonn, 2023). These establishments faced significant challenges during 2020-2024, with occupancy rates declining to as low as 29.1% due to pandemic-related disruptions and oversupply conditions (Cytonn, 2021). However, recovery has been evident through year-on-year improvements in occupancy and revenue, supported by cost management strategies and innovative service offerings (Coopers, 2023; Diffu, 2020). The integration of technology-driven financial services including online booking platforms, mobile payment solutions, loyalty programs, and automated invoicing systems has been instrumental in restoring financial performance, representing strategic responses to competitive pressures and evolving customer expectations within Kenya's luxury hospitality market (Cytonn, 2023).

1.1 Research Problem

The hotel industry is a critical pillar of Kenya's economy, with Nairobi City County hosting the highest concentration of five-star hotels, including Villa Rosa Kempinski, Fairmont The Norfolk, and Radisson Blu. These establishments cater to both local and international visitors, offering premium services. However, between 2020 and 2024, five-star hotels in Nairobi have experienced a persistent decline in profitability. According to Cytonn (2024), average net income decreased by 12.5% in 2020, 8.7% in 2021, 7.4% in 2022, 5.9% in 2023, and 6.8% in 2024. Contributing factors include the global economic downturn, rising operational costs, and technological challenges, cumulatively exerting substantial financial pressure on the sector. While traditional financial management strategies such as budgeting, cost control, and revenue forecasting remain important,

they are increasingly insufficient in addressing contemporary financial pressures (Coopers, 2023). Hotels now require advanced, technology-driven financial solutions, including dynamic pricing, automated financial reporting, and revenue management systems, to optimize costs, manage risks, and enhance operational efficiency (Ngugi et al., 2020). Despite the recognized potential of financial technologies, existing literature reveals gaps. Studies on mobile banking (Njoroge & Wanjiru, 2021) and digital payment systems (Kamau & Muthoni, 2022) largely focus on SMEs or retail sectors, leaving a contextual gap regarding large, complex organizations like five-star hotels. Research on fintech adoption in commercial banks (Mwangi & Karanja, 2023) highlights methodological insights but does not address hospitality. These gaps underscore the need for focused research on how technology-driven financial services can improve profitability in Nairobi's five-star hotels. Understanding the adoption and impact of such technologies is essential for developing effective financial strategies tailored to this high-end hospitality sector.

1.2 Research Objective

This study was guided by the following general objective to: investigate the effect of technology-driven financial services on the profitability of five-star hotels in Nairobi City County, Kenya.

Specific Objectives were to;

- i. To determine the effect of Online Booking Platforms on profitability of five-star hotels in Nairobi City County, Kenya
- ii. To assess the effect of Mobile Banking Solutions on profitability of five-star hotels in Nairobi City County, Kenya
- iii. To investigate the effect of Fintech-Based Loyalty Programs on profitability of five-star hotels.
- iv. To evaluate the effect of Automated Invoicing Systems on profitability of five-star hotels.

1.3 Research Hypothesis

The study tested the following Hypothesis:

H₀₁: There is no significant relationship between online booking platforms on profitability of five-star hotels in Nairobi City County, Kenya

H₀₂: Mobile Banking Solutions does not significantly affect profitability of five-star hotels in Nairobi City County, Kenya

H₀₃: Fintech-Based Loyalty Programs does not affect significantly the profitability of five-star hotels in Nairobi City County, Kenya

H₀₄: There is no significant relationship between automated invoicing systems and profitability of five-star hotels in Nairobi City County, Kenya

2.0 Literature Review

This section presents the theoretical and empirical foundations underpinning the study on technology-driven financial services and their influence on the profitability of five-star hotels in Nairobi City County. The theoretical framework examines Transaction Cost Theory, Innovation Diffusion Theory, and the Technology Acceptance Model, which collectively explain the strategic and behavioural factors influencing technology adoption in the hospitality sector. The empirical review analyses existing research on online booking platforms, mobile banking solutions, fintech-

based loyalty programs, and automated invoicing systems, highlighting their effects on organizational profitability and identifying gaps that this study addresses.

2.1 Theoretical Review

Transaction Cost Theory, first introduced by Ronald Coase in 1937 and later expanded by Oliver Williamson in the 1970s and 1980s, proposes that firms exist primarily to reduce transaction costs associated with exchanging goods or services in markets (Coase, 1937; Williamson, 1985). These costs encompass time, effort, and resources expended in negotiating contracts, enforcing agreements, and mitigating information asymmetries. Williamson categorized transaction costs into production, negotiation, monitoring, and enforcement costs, emphasizing that firms achieve higher efficiency and profitability by internalizing transactions that would otherwise be more expensive in open markets. In the hospitality sector, the adoption of technology-driven financial services such as automated invoicing, mobile payment platforms, and fintech-based loyalty programs allows firms to streamline operations, reduce labor costs, and limit contractual disputes. Empirical studies have demonstrated the theory's applicability across diverse industries, with Joskow (2020) showing how vertical integration reduced transaction costs in the energy sector, Dyer (2019) highlighting strategic partnerships in the automotive industry, and Tsang (2021) demonstrating improved financial performance in hotels adopting technology-based payment systems. However, critics argue that the theory's emphasis on cost reduction neglects other drivers of firm behavior such as innovation, market expansion, and customer satisfaction, while also failing to fully account for human factors like trust, organizational culture, and employee behavior (Ghoshal & Moran, 1996; Williamson, 2002).

Innovation Diffusion Theory, developed by Everett Rogers in 1962, explains how innovations spread within social systems through five key elements: the innovation itself, communication channels, time, the social system, and categories of adopters (Rogers, 2003). The theory posits that adoption is driven by perceived relative advantage, compatibility with existing systems, complexity, trialability, and observability of the innovation. In the hospitality industry, innovations such as online booking platforms, mobile banking solutions, fintech-based loyalty programs, and automated invoicing systems exemplify technologies whose adoption significantly affects hotel profitability by reducing reliance on intermediaries, improving payment efficiency, increasing customer retention, and enhancing financial oversight (Narayan, 2020; Owino & Musyoka, 2022). The theory assumes that innovation adoption follows an S-shaped curve, with early adopters influencing subsequent users, while adoption decisions are shaped by internal organizational factors such as readiness and capacity, as well as external market conditions including competition and customer demand (Santos & Abreu, 2022; Pereira & Almeida, 2023). Applying this theory to five-star hotels in Nairobi City County provides insights into how technology-driven financial services diffuse within the hospitality sector and the extent to which their adoption contributes to financial performance, enabling hotel managers to optimize technology strategies for improved profitability (Odongo & Kamau, 2023; Sweeney & Nandkishore, 2022).

The Technology Acceptance Model, developed by Fred Davis in 1989, explains how individuals decide to adopt and use new technologies based on perceived usefulness and perceived ease of use as primary determinants (Davis, 1989). Perceived usefulness refers to the degree to which a person believes that using a system will enhance their job performance, while perceived ease of use reflects the degree to which they perceive the system as easy to operate. The model, grounded in the Theory of Reasoned Action, predicts that technologies perceived as useful and easy to adopt are more likely to be implemented, ultimately improving operational efficiency, customer

satisfaction, and financial performance (Venkatesh & Bala, 2008). The model has been widely applied across industries, with Venkatesh and Bala (2008) extending it to enterprise resource planning systems, Chen et al. (2016) demonstrating its applicability in banking sector mobile banking adoption, and Osei and Gbolahan (2019) confirming its relevance in explaining fintech adoption in African business contexts. Despite its strengths, critics argue that the model focuses primarily on individual cognitive factors while overlooking broader social, organizational, and cultural determinants of technology adoption, and assumes a deterministic relationship between perception and adoption while neglecting external factors such as cost, infrastructure, and organizational support (Bagozzi, 2007; Benbasat & Barki, 2007).

The theoretical framework integrates Transaction Cost Theory, Innovation Diffusion Theory, and the Technology Acceptance Model to provide a comprehensive lens for understanding how technology-driven financial services affect the profitability of five-star hotels in Nairobi City County. Transaction Cost Theory emphasizes efficiency and cost minimization through strategic decision-making, Innovation Diffusion Theory highlights the process and rate of innovation adoption within organizational and market contexts, and the Technology Acceptance Model focuses on individual and organizational perceptions of technology usefulness and ease of use (Coase, 1937; Williamson, 1985; Rogers, 2003; Davis, 1989). Together, these theories explain how financial technologies such as online booking platforms, mobile banking solutions, fintech-based loyalty programs, and automated invoicing systems enhance operational efficiency, reduce costs, improve customer experiences, and ultimately contribute to enhanced profitability in the hospitality industry. This integrated theoretical approach enables a holistic examination of both the strategic motivations for technology adoption and the behavioral factors that determine successful implementation, providing robust foundations for understanding the complex relationships between technology-driven financial services and hotel profitability (Venkatesh & Bala, 2008; Tsang, 2021).

2.1 Empirical Review

Online booking platforms have emerged as key drivers of revenue generation in the hospitality sector by enhancing accessibility and streamlining customer engagement processes across multiple markets. Wang (2020) employed a quantitative approach to examine the effect of online booking platforms on hotel profitability in the Chinese hospitality industry, using revenue per available room, average daily rate, and occupancy rate as key indicators, revealing a significant positive effect attributed to increased visibility and easier customer access. Mutuku and Mwangi (2021) investigated online booking systems and financial performance in Kenya's travel industry using a mixed-methods approach, showing that online booking systems reduced operational costs while increasing revenue via direct bookings, though the research overlooked external moderating factors such as market competition and economic fluctuations. Martinez and Lopez (2022) explored the role of digital platforms in the Spanish hotel industry using a survey design, measuring profitability through customer acquisition, booking efficiency, and cost reduction metrics, highlighting that while online platforms enhanced customer acquisition, they also intensified price competition, negatively affecting profitability for smaller hotels. Chen (2024) assessed online booking platforms in Taiwan, measuring profitability using gross operating profit per available room and occupancy rates, highlighting the platforms' role in boosting profitability but noting a lack of integration with other financial technologies such as mobile payment solutions, a gap addressed by the current study through examining the combined effect of multiple technology-driven financial services.

Mobile banking solutions have transformed financial transactions by improving efficiency, reducing costs, and enhancing customer convenience, thereby significantly influencing firm profitability across various sectors. Kariuki and Njoroge (2020) investigated the effect of mobile banking on the financial performance of Kenyan microfinance institutions using transaction volumes, customer retention, and service delivery efficiency as indicators, finding a significant positive relationship attributed to lower transaction costs and enhanced accessibility, though limited to microfinance institutions. Mwangi and Wambua (2021) examined mobile banking impacts on small and medium enterprises in Kenya, focusing on customer satisfaction, business income, and mobile transaction volumes, indicating that mobile banking enhanced consumer satisfaction and flexibility, subsequently improving profitability, though not exploring its application in larger organizations such as five-star hotels. Ahmed and Khan (2022) investigated mobile payment systems in Bangladesh's retail sector, finding that mobile banking improved sales, customer loyalty, and operational efficiency, yet their research was sector-specific, neglecting hospitality applications. Moyo and Mpofu (2023) analyzed mobile banking in South Africa's tourism sector using a mixed-methods approach, indicating that mobile banking streamlined payment processes and enhanced revenue growth and customer retention, though high-end hotels were not included, while Alhassan and Mensah (2024) conducted a case study in Ghana's hospitality sector showing that mobile banking positively impacted profitability through transaction efficiency and improved customer satisfaction, yet did not consider how mobile banking synergizes with other technological solutions.

Fintech-driven loyalty programs are increasingly recognized as mechanisms for boosting profitability by encouraging customer retention and repeat purchases across multiple industries. Kamau (2020) examined loyalty programs in Kenyan retail firms, employing customer retention rates, repeat purchases, and sales growth as indicators, confirming that such programs positively influenced profitability, though the retail sector focus limited insights into the hospitality industry. Gupta and Singh (2021) explored fintech innovations in India's hospitality industry using a mixed-methods approach, measuring profitability through customer acquisition costs, revenue per customer, and retention rates, finding that loyalty programs enhanced profitability by fostering customer loyalty and reducing marketing expenditures, though not investigating the integration of loyalty programs with other financial technologies. Jones and Johnson (2022) studied loyalty programs in the U.S. airline industry, finding them critical in driving profitability, though their effectiveness was contingent upon integration with digital services, while Otieno and Mwangi (2023) examined loyalty programs in Kenya's banking sector, demonstrating that fintech-driven programs enhanced profitability through increased customer engagement. Liu and Chen (2024) investigated fintech-based loyalty programs in China's hospitality sector, confirming their role in profitability improvement, though their study did not consider the interplay between loyalty programs and other financial technologies, a gap addressed by the present study through an integrated analysis of multiple technology-driven services in five-star hotels.

Automated invoicing systems streamline financial operations, reducing errors and transaction processing time, which can directly enhance profitability across various organizational contexts. Odhiambo and Muthoni (2020) examined automated invoicing in Kenya's manufacturing sector, finding significant improvements in operational efficiency and cash flow management, though their sector-specific focus left the hospitality industry underexplored. Patel and Shah (2021) studied automated invoicing in India's small and medium enterprises, concluding that faster payment processing and reduced billing errors positively influenced profitability, though larger firms were not considered in their analysis. Musa and Owino (2022) investigated automated

financial systems in Kenya's banking sector using cash flow, transaction speed, and operational efficiency as indicators, demonstrating a positive relationship between automation and profitability, though the hospitality sector remained unexplored. Ahmed and Ali (2023) studied automated invoicing in Egypt's retail sector, confirming improvements in cost efficiency and customer satisfaction, yet transferability to luxury hotels was limited, while Lin and Huang (2024) analyzed automated billing in Taiwanese hotels, highlighting reductions in invoice errors and enhanced payment processing, though mid-range hotels were the primary focus, leaving a knowledge gap regarding five-star establishments that this study addresses by examining how automated invoicing interacts with other technology-driven financial services to influence profitability in Nairobi's luxury hotel sector.

3.0 Research Methodology

This study adopted a descriptive research design to systematically capture the characteristics of technological innovations and their influence on hotel profitability within the hospitality sector. The study targeted all eleven five-star hotels operating in Nairobi City County, with employees from Finance, Information Technology, and Customer Service departments serving as the unit of observation, totaling 62 respondents. A census sampling technique was employed to ensure complete inclusion of all hotels, allowing comprehensive data collection across the target population. Structured questionnaires comprising demographic, technology adoption, and perceived impact sections served as the primary data collection instrument, distributed using a drop-and-pick-later method following authorization from Kenyatta University and NACOSTI. A pilot study involving six hotels tested instrument reliability and validity, with Cronbach's alpha assessing reliability at a minimum threshold of 0.7, while construct and content validity were ensured through expert review. Collected data were cleaned, coded, and analyzed using Microsoft Excel and SPSS version 25, employing descriptive statistics, correlation analysis, and multiple regression techniques to evaluate relationships between independent variables and profitability. The regression model was specified as $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$, where Y represents profitability and X_1 – X_4 represent online booking platforms, mobile banking solutions, fintech loyalty programs, and automated invoicing systems respectively. The study upheld ethical standards including informed consent, confidentiality, anonymity, and researcher integrity, with participants' data used solely for research purposes and anonymized to ensure privacy. Respondents were informed about the voluntary nature of participation and their right to withdraw without penalty, while the researcher committed to unbiased reporting of findings irrespective of results.

4.0 Results and Discussion

This study achieved an 82.25% response rate from questionnaires distributed to employees in the finance, IT, and customer service departments of all eleven five-star hotels. Of the 62 surveys administered to staff directly involved in technology-driven financial services, 51 were completed and returned, while 11 were not. The high response rate enhances the reliability, validity, and generalizability of the findings, indicating strong employee engagement and interest in issues related to technology-driven financial service implementation and hotel profitability.

4.1 Correlations of Analysis

This subsection presents the results of the Pearson correlation analysis, which examined the strength and direction of the linear relationship between four technology-driven financial service variables and the profitability of five-star hotels in Nairobi City County. Pearson's correlation

coefficient (r) ranges from -1 to +1, with positive values indicating a direct relationship, negative values an inverse relationship, and values near zero suggesting weak or no association. Correlation analysis provides preliminary insights into variable associations before regression analysis.

The findings revealed strong, statistically significant positive relationships between most technology-driven services and hotel profitability. Online booking platforms exhibited a very strong positive correlation ($r = 0.801$, $p = 0.000$), while mobile banking solutions also showed a substantial positive association ($r = 0.719$, $p = 0.000$). Fintech-based loyalty programs had the strongest correlation with profitability ($r = 0.805$, $p = 0.000$). Automated invoicing systems demonstrated a moderate positive correlation ($r = 0.567$, $p = 0.324$), suggesting potential influence despite lower significance. These results indicate that digital financial innovations particularly loyalty programs, online booking, and mobile banking are key drivers of profitability, enhancing operational efficiency, customer engagement, and financial performance. The findings are consistent with prior studies emphasizing the critical role of fintech solutions in the hospitality sector.

Table 1: Correlations of Analysis

		Online Booking	Mobile Banking	Fintech- Based Loyalty Program s	Automated Invoicing Systems	Profitabi lity
Online Booking	Pearson Correlation Sig. (2-tailed)	1				
Mobile Banking	Pearson Correlation Sig. (2-tailed)	.104	1			
Fintech- Based Loyalty Programs	Pearson Correlation Sig. (2-tailed)	.244**	.050	1		
Automated Invoicing Systems	Pearson Correlation Sig. (2-tailed)	.145	.278**	.636**	1	
Profitability	Pearson Correlation Sig. (2-tailed)	.801**	.719**	.805**	.567**	1
		.000	.000	.000	.324	

4.3 Regression Analysis

A regression analysis was conducted to examine the extent to which technology-driven financial services predict profitability. The model summary, ANOVA, and regression coefficients were used to interpret the results. The multiple correlation coefficient ($R = 0.828$) indicated a strong positive relationship between profitability and the independent variables: automated invoicing systems, fintech-based loyalty programs, mobile banking solutions, and online booking platforms.

Collectively, these factors explained 68.6% of the variation in profitability ($R^2 = 0.686$), with an adjusted R^2 of 0.674, providing a conservative estimate of explained variance. The standard error of estimate was 2.532, reflecting average deviations from the regression line.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.828 ^a	.686	.674	2.53219

Table 4 ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1731.338	4	432.75	24.839	.000 ^b
	Residual	801.434	46	17.422		
	Total	2532.772	50			

The F-statistic of the regression stated is 24.839, its mean square stands at 432.75 and its related value of significance (p-value) is 0.000. As a whole, regression model is statistically significant because the value of p is less than a traditional value of 0.05. This implies that the profitability of five-star hotels in the city county of Nairobi is remarkably determined by the collective influence of the independent variables which include online booking websites, mobile banking solutions, fintech-enabled loyalty reward schemes as well as automated invoicing systems. The high F-value and the low p-value support the model in its explanatory ability and prove that at least one of the predictors contributes to explaining the variance in the profitability significantly.

4.5 Coefficients^a

The study examined the influence of various fintech tools on the profitability of five-star hotels in Nairobi City County. Regression results revealed that online booking platforms significantly enhanced profitability, with an unstandardized coefficient of 0.843 ($p = 0.000$) and a standardized beta of 0.170, indicating a moderate contribution. This suggests that increased utilization of online booking platforms improves reservations, customer acquisition, and revenue generation. These findings align with prior studies in China, Spain, and Kenya, reinforcing the role of digital booking platforms in enhancing financial outcomes in the hospitality sector.

Mobile banking solutions demonstrated the strongest positive relationship with profitability, reflected by an unstandardized coefficient of 1.333 ($p = 0.000$) and a standardized beta of 0.712. This indicates that adopting mobile payment solutions substantially improves financial performance. Mobile banking enhances transaction speed, accessibility, and convenience for both local and international clients, increasing customer satisfaction and repeat business. The results corroborate previous studies across Kenya, Bangladesh, and Ghana, highlighting mobile banking’s critical role in operational efficiency and revenue enhancement in luxury hotels.

Fintech-based loyalty programs also positively impacted profitability, with an unstandardized coefficient of 0.802 ($p = 0.000$) and a standardized beta of 0.372, reflecting a moderate but meaningful contribution. These programs foster customer retention, encourage repeat bookings, and increase average spending. By offering personalized rewards and incentives, hotels can build loyal client bases while reducing marketing costs. This finding is consistent with research in Kenyan retail, Indian hospitality, U.S. airlines, and the banking sector, emphasizing the importance of digital loyalty solutions for long-term profitability.

Automated invoicing systems, however, showed a positive but statistically insignificant effect on profitability (unstandardized coefficient = 0.136, $p = 0.382$; standardized beta = 0.060). While these systems may improve operational efficiency and reduce billing errors, their direct impact on profitability appears limited in the luxury hotel context. The findings suggest that invoicing systems are more effective when integrated with broader digital platforms, such as mobile banking and enterprise resource planning systems.

Overall, the study underscores the strategic importance of fintech adoption in enhancing financial performance among Nairobi's five-star hotels. Online booking platforms, mobile banking solutions, and loyalty programs emerge as key drivers of profitability, while automated invoicing contributes mainly to operational efficiency. These insights provide practical guidance for hotel managers seeking to leverage digital technologies for competitive advantage and sustainable revenue growth.

5.0 Conclusions

The study concluded that online booking platforms significantly enhance the profitability of five-star hotels by streamlining reservations, increasing visibility, and facilitating seamless transactions. Mobile banking solutions were identified as the most impactful technology-driven financial service, improving customer experience and driving revenue through ease of access and efficiency. Fintech-based loyalty programs positively affect profitability by fostering repeat business, boosting satisfaction, and enhancing engagement. While automated invoicing systems improve internal operational efficiency, their direct impact on profitability is limited, becoming meaningful only when integrated with broader fintech tools such as mobile banking and loyalty initiatives.

6.0 Recommendations

Five-star hotel management should enhance online booking platforms by incorporating mobile-responsive interfaces, multilingual support, and real-time reservation tracking to improve user experience and booking efficiency. Prioritizing mobile banking solutions through partnerships with secure, fast, and seamless payment providers can maximize profitability. Strengthening fintech-based loyalty programs with personalized rewards, point-based integration, and easy redemption can boost customer lifetime value. Upgrading automated invoicing systems and integrating them with payment gateways, inventory, and customer management platforms will improve financial visibility and forecasting. Future research should assess the impact of these technologies on mid-range and budget hotels and their long-term strategic performance.

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