

## Service Quality, Innovation, and Cost Efficiency as Drivers of Hotel Performance in Tamil Nadu

<sup>1</sup>O Anitha, <sup>2</sup>Dr. K. Ramasamy

<sup>1</sup>Research Scholar, Sri Krishna Arts and science college (Autonomous),  
Coimbatore.

Email Id: anithaochupandi1991@gmail.com

<sup>2</sup>Assistant Professor & Research Supervisor,  
Department of Commerce, Sri Krishna Arts and science college (Autonomous),  
Coimbatore.

Email Id: ramasamyk@skasc.ac.in

**Abstract:** This study examines how service quality, innovation, and cost efficiency drive hotel performance in Tamil Nadu. We use a cross-sectional design with data from hotels across metro and non-metro locations and across different star levels and ownership types for our analysis. Drivers are measured using clear survey items, and performance is obtained from hotel records and online dashboards, including occupancy, average daily rate, revenue per available room, profit per available room, and guest ratings. Simple tools were applied, including descriptive statistics, correlation, and regression. Mediation was tested to determine whether customer satisfaction and online reputation passed the effects of the drivers on performance. The results show that service quality has the strongest and most consistent link to performance, innovation adds meaningful gains, and cost efficiency secures profit. Customer satisfaction has a large share of the service quality effect, and online reputation has a large share of the innovation effect. Chain, metro, and higher-star hotels show higher average performance. This study offers a clear action plan for managers. Lift service basics first, add focused digital innovations next, and then lock in gains through energy and process control.

**Keywords:** Service quality, Innovation, Cost efficiency, Customer satisfaction, Online reputation, Hotel performance, Occupancy, Average daily rate, Revenue per available room, Profit per available room

### Introduction

The hotel sector in Tamil Nadu plays a key role in travel, employment, and local growth. Hotels face strong competition, shifting guest expectations, and increasing costs. In this setting, three forces are most important for the results. The first is service quality, which shapes guest experience and repeat visits. The second is innovation, which includes digital tools, contactless services, revenue management systems, and novel service ideas. The third is cost efficiency, which helps hotels control spending on energy, staff, and supplies without compromising the guest experience.

This study explores how these three drivers influence core performance measures, such as the occupancy rate, average daily rate, revenue per available room, gross operating profit per available room, and online guest ratings. It also examines how customer satisfaction and online reputation may act as links between the drivers and the results. In simple terms, better service, smart use of technology, and lean operations may improve guest happiness and online image, which, in turn, can improve hotel performance.

Tamil Nadu has many types of hotels across metro and non metro areas and across different star levels, with both chain and independent ownership. This study compares the results across these groups to determine what works best in each setting. The goal is to provide clear and practical guidance for managers who must choose where to invest first, whether in training, technology, or process improvements. By showing which actions drive the strongest gains and in what order, this study aims to support better decisions, fair pricing, stronger profits, and a better guest experience across the state.

## Literature Review

Service quality remains a fundamental aspect of competitive advantage in the hospitality industry, as it significantly influences guest satisfaction and loyalty, which, in turn, support repeat business and positive word-of-mouth (Liat et al., 2017). At the operational level, service quality functions not only as an outcome but also as a managerial philosophy that directs resource allocation, staff behaviour, and process design across hotel functions (Al-Ababneh, 2017). Empirical studies have consistently demonstrated that hotels with well-defined service standards and consistent delivery outperform their peers in terms of customer outcomes. Measurement efforts have adapted generic service quality models to the hotel context. The HOLSERV scale extends SERVQUAL by incorporating items specifically tailored to lodging, consistently highlighting the importance of employee behaviour and appearance, along with tangibles and reliability, as determinants of perceived quality, while employee-related factors typically exert the greatest influence (Wong Ooi Mei et al., 1999). This body of research underscores that frontline human interactions remain crucial, even when facilities and processes are well designed. Service recovery is a critical complement to the baseline quality. Prompt, empathetic, and empowered responses to service failures can restore satisfaction and protect loyalty, thereby mitigating the negative effects of service lapses (Liat et al., 2017). Hotels that operationalise recovery through clear playbooks, time targets, and accountability can transform potential detractors into advocates, thereby improving post-stay ratings and repeat intentions. Concurrently, innovation, particularly digital innovation, has redefined service design and delivery. Artificial intelligence, the Internet of Things, and automation now facilitate personalisation, 24/7 responsiveness, and language-agnostic assistance through chatbots and virtual concierges, reducing friction and enhancing perceived quality (Astuti et al., 2024). These technologies can also streamline back-of-house operations and enhance speed and consistency. Industry 4.0 frames these changes as part of a broader capability agenda. The literature emphasises that technology alone is insufficient; hotels require learning-oriented cultures, cross-functional collaboration, and change-ready leadership to translate tools into guest value and operational gains (Shamim et al., 2017; Skubis, 2024). Continuous upskilling and data-driven decision-making are the enabling conditions for sustained performance improvements. While these strands link service quality and innovation to customer outcomes, practical hotel performance is multidimensional. Beyond satisfaction and loyalty, managers monitor occupancy, pricing power, revenue per available rooms, and operating profit per available rooms. The literature increasingly advocates designs that connect soft outcomes to hard indicators, recognising that quality and innovation must manifest in both market and financial performance.

## Research Gap

Studies rarely model service quality, innovation, and cost efficiency collectively, despite their combined effects on hotel outcomes. Research on customer engagement pathways often stops at satisfaction and loyalty, with limited analysis of how quality and innovation mediate satisfaction and online reputation to financial KPIs such as ADR, RevPAR, and GOPPAR. Current measurement scales emphasise human and tangible elements but inadequately capture AI-enabled interactions that influence quality and review. Evidence comparing star categories, ownership types, and locations, especially within Indian states, remains limited, constraining segment-specific guidance. Few studies have combined perception surveys with performance data to connect guest experience and innovation to market outcomes.

### Objectives of the study

1. To determine how service quality, innovation, and cost efficiency affect hotel results and how they work together, measures such as occupancy rate, average daily room rate, revenue per room, profit per room, and online ratings in Tamil Nadu are used.
2. To check if customer satisfaction and online reputation act as links between these drivers and hotel results.
3. This study compares these effects across hotel star levels, chain versus independent hotels, and metro versus non-metro locations and suggests a clear, prioritised improvement plan.

### Research Methodology

This study uses an explanatory cross-sectional design to examine how service quality, innovation, and cost efficiency influence hotel performance in Tamil Nadu. applied stratified sampling by city, star level, and ownership type. The data were obtained from manager surveys, monthly hotel records, and online dashboards. All constructs were measured using clear Likert scale items based on prior research. Reliability was checked using Cronbach's alpha, and validity was confirmed using average variance extracted and composite reliability. The analysis included descriptive statistics, correlation, and hierarchical regression. test mediation through customer satisfaction and online ratings and run checks for multicollinearity and heteroscedasticity.

### Data Analysis and Result

#### H1: Service Quality → Hotel Performance (Occupancy, ADR, RevPAR, GOPPAR, Online Ratings, Performance Index)

This study examines the potential correlation between enhanced service quality and improved hotel performance in Tamil Nadu, India. Initially, we investigated the direct associations between service quality and various performance metrics. Subsequently, we conducted a basic regression analysis using the Performance Index as the dependent variable to quantify the effect size, providing a singular metric that managers can utilise.

**Table 1: Service Quality vs each performance metric**

Outcome	r	p_value
Occupancy Rate	0.419	0
ADR	0.206	0.001
RevPAR	0.337	0
GOPPAR	0.353	0
OnlineRating	0.583	0
PerformanceIndex	0.492	0

Source: Computed Data

**Table 2: Performance Index on Service Quality**

Predictor	Coefficient	Intercept	StdError	tvalue	Pvalue	Rsquared	AdjRsquared
Service Quality	0.0311	-2.2659	0.0035	8.907	0	0.242	0.239

Source: Computed Data

Correlations. The analysis revealed a clear positive correlation between service quality and key performance metrics. Enhanced service quality is linked to increased occupancy rates, improved average daily rates (ADR),

elevated revenue per Available Room (RevPAR), higher Gross Operating Profit per Available Room (GOPPAR), and superior online ratings. The correlation with the composite Performance Index was both positive and statistically significant, indicating a comprehensive enhancement in performance rather than improvements confined to a single area. Effect size from regression analysis. The simple regression analysis of the Performance Index on service quality yielded a positive and significant coefficient. This finding suggests that each incremental increase in the service quality score corresponds to an overall improvement in performance. The R-squared value indicates the proportion of performance variance attributable solely to service quality, underscoring its practical significance while acknowledging the influence of other factors such as innovation and cost efficiency. Managerial implications. Enhancing service quality should be prioritized as a primary strategy. Emphasis should be placed on frontline staff training, effective service recovery, maintaining cleanliness, and ensuring consistency in standards. These measures are likely to enhance guest experiences and online ratings, thereby supporting pricing power and revenue per room.

## **H2: Innovation → Hotel Performance (Occupancy, ADR, RevPAR, GOPPAR, Online Ratings, Performance Index)**

This study examines the potential association between increased innovation and enhanced hotel performance in Tamil Nadu. Initially, we employ Pearson correlation to explore the straightforward relationships between innovation and each performance metric. Subsequently, we conduct a basic regression analysis with the Performance Index as the dependent variable to quantify the effect size.

**Table 3: Innovation vs each performance metric**

Outcome	r	p_value
OccupancyRate	0.263	0
ADR	0.045	0.4801
RevPAR	0.15	0.0177
GOPPAR	0.303	0
OnlineRating	0.322	0
PerformanceIndex	0.281	0

Source: Computed Data

**Table 4: Performance Index on Innovation**

Predictor	Coefficient	Intercept	StdError	Tvalue	Pvalue	Rsquared	AdjRsquared
InnovationIndex	0.0147	-0.9281	0.0032	4.603	0	0.079	0.075

Source: Computed Data

Correlations. Innovation demonstrates positive associations with occupancy, Average Daily Rate (ADR), Revenue per Available Room (RevPAR), Gross Operating Profit per Available Room (GOPPAR), and online ratings. The correlation with the Performance Index is both positive and statistically significant, indicating that hotels implementing advanced technology and novel service concepts tend to exhibit superior performance across key metrics. Effect size from regression analysis. The simple regression analysis of the Performance Index on innovation reveals a positive and significant coefficient. Each incremental point on the innovation index corresponds to a discernible increase in overall performance. The R-squared value indicates the proportion of performance variation attributable solely to innovation. Although the effect size is moderate and less than that of service quality, it remains significant for managerial consideration. Managerial implications. In conjunction with service quality, investment in intelligent tools and innovative processes is advantageous. Emphasis should be placed on digital check-in, dynamic pricing and distribution, review response systems, and straightforward

automation to minimize friction for both guests and staff. These initiatives can enhance demand and pricing power while simultaneously improving the hotel's online reputation.

### **H3: Cost Efficiency → Hotel Performance**

This study examines the potential association between enhanced cost efficiency and improved hotel performance in Tamil Nadu. Initially, we establish basic correlations between cost efficiency and various performance metrics utilizing Pearson correlation analysis. Subsequently, we conduct a fundamental regression analysis with the overall Performance Index serving as the dependent variable.

**Table 5: Pearson correlations: Cost efficiency vs performance**

Outcome	r	p value	N
OccupancyRate	0.122	0.0541	250
ADR	-0.046	0.4716	250
RevPAR	0.013	0.8336	250
GOPPAR	0.441	0.0000	250
OnlineRating	0.120	0.0576	250
PerformanceIndex	0.169	0.0075	250

**Note:** p value 0.0000 indicates  $p < 0.0001$ .

**Table 6: Simple linear regression: PerformanceIndex on CostEfficiencyScore**

Predictor	Coefficient	Intercept	Std Error	t value	p value	R squared	Adj squared	R
CostEfficiencyScore	0.0090	-0.5609	0.0033	2.694	0.0075	0.0284	0.0245	

Source: Computed Data

The relationship between cost efficiency and profitability is evident, as profit per available room demonstrates a strong positive correlation with cost efficiency. Additionally, the overall Performance Index exhibits an increase with cost efficiency, albeit to a modest extent. Conversely, room rate and RevPAR do not independently exhibit significant associations with cost efficiency. The regression analysis confirms a minor yet statistically significant positive impact of cost efficiency on overall performance. This suggests that effective management of energy, staffing, and operational processes enhances profitability and incrementally improves overall outcomes. Managerial implications include the recommendation to focus on enhancing service quality and implementing beneficial innovations, while concurrently optimizing high-impact costs such as energy consumption, waste, and low-value contracts. These measures predominantly enhance profitability rather than affecting price or RevPAR, thereby reliably strengthening the financial performance.

### **H4: customer satisfaction and online reputation carry the driver effects to performance?**

This hypothesis tests whether the impact of the main drivers reaches performance through customer feelings and public image. We study two simple chains. First, service quality leads to customer satisfaction, which then lifts the overall performance index. Second, innovation improves online ratings, which then lifts the overall performance index. We test each chain by checking the path from the driver to the mediator and from the mediator to performance while holding the driver constant. We compare total and direct effects to see how much of the impact flows through the mediator. A Sobel test is used to confirm if the indirect effect is significant.

This session evaluates two straightforward mediation models utilizing your data. H4a: Service quality → Customer satisfaction → Overall performance index. H4b: Innovation → Online rating → Overall performance index.

#### **H4a — Mediation: Service Quality → Customer Satisfaction → Performance Index**

**Table 7: Path coefficients and model fit**

Path / Model	Coefficient	Std. error	Model R <sup>2</sup>
a: Service quality → Customer satisfaction	0.475	0.032	0.467
b: Customer satisfaction → Performance index controlling for service quality	0.0425	0.0063	0.359
c total: Service quality → Performance index	0.0311	—	0.242
c' direct: Service quality → Performance index controlling for customer satisfaction	0.0108	—	0.359

Source: Computed Data

**Table 8: Sobel test for indirect effect**

Sobel z	p value	Inference
6.114	< 0.001	Significant mediation

Source: Computed Data

Table 7 & 8 shows a strong a path. Service quality explains almost half of the variance in customer satisfaction, with a coefficient of 0.475 and model R squared of 0.467. In the second step, customer satisfaction is a positive predictor of the performance index while controlling for service quality, coefficient 0.0425 and model R squared 0.359. The total effect of service quality on performance is 0.0311 and falls to 0.0108 after adding satisfaction. About sixty five percent of the quality effect is transmitted through customer satisfaction. The Sobel test in Table 8 is significant with z equal to 6.114 and p less than 0.001, confirming mediation. In practice, upgrades to service basics and recovery raise satisfaction, which then lifts occupancy, pricing power, and profit.

#### **H4b — Mediation: Innovation → Online Rating → Performance Index**

**Table 9: Path coefficients and model fit**

Path / Model	Coefficient	Std. error	Model R <sup>2</sup>
a: Innovation → Online rating	0.0109	0.0020	0.103
b: Online rating → Performance index controlling for innovation	0.8533	0.0835	0.352
c total: Innovation → Performance index	0.0147	—	0.079
c' direct: Innovation → Performance index controlling for online rating	0.0054	—	0.352

Source: Computed Data

**Table 10: Sobel test for indirect effect**

Sobel z	p value	Inference
4.738	< 0.001	Significant mediation

Source: Computed Data

Table 9 and 10 shows that innovation modestly but significantly improves online ratings, coefficient 0.0109 with model R squared 0.103. Online ratings are a strong predictor of the performance index when controlling for innovation, coefficient 0.8533 with model R squared 0.352. The total effect of innovation on performance is 0.0147 and drops to 0.0054 after adding ratings. Roughly sixty three percent of the innovation effect operates through improved reviews. The Sobel test in Table B2 is significant with z equal to 4.738 and p less than 0.001. In practice, new tools and processes pay off when they translate into better guest reviews, so innovation and review management should be executed together.

### H5: effects and outcomes differ across hotel categories and locations

This session compares overall performance across ownership type, location, and star level using simple tests.

#### H5a — Chain vs Independent

Table 11: Group means and test

Group	N	Mean performance index	SD
Chain	107	0.274	0.734
Independent	143	-0.205	0.739
t	p value	Cohen d	
5.086	< 0.001	0.650	

Source: Computed Data

Chain hotels show a higher mean performance index than independent hotels, 0.274 versus minus 0.205. The difference is statistically significant with t equal to 5.086 and p less than 0.001, and the effect size is medium with Cohen d equal to 0.650. This points to advantages from brand standards, shared systems, and centralized revenue management.

#### H5b — Metro vs Non-Metro

Tool: Independent-samples t test with Cohen d

Table 12: Group means and test

Group	N	Mean performance index	SD
Metro	13	0.697	0.865
Non-Metro	237	-0.038	0.751
t	p value	Cohen d	
3.005	0.010	0.972	

Source: Computed Data

#### Metro vs non metro

Metro hotels outperform non metro hotels, 0.697 versus minus 0.038. The difference is statistically significant with t equal to 3.005 and p equal to 0.010, and the effect size is large with Cohen d equal to 0.972. Higher demand density and stronger rate power likely explain this gap.

#### H5c — Star Category differences

This study examines whether hotel performance varies among key categories. Specifically, it compares chain versus independent hotels, metropolitan versus non-metropolitan locations, and different star ratings. The



hypothesis posits that brand systems, market depth, and service standards may influence outcomes related to occupancy, pricing, revenue per room, profit per room, and online ratings.

**Tool:** One-way ANOVA with eta squared

**Table 13: Group means and ANOVA**

Star	N	Mean performance index	SD
2	33	-0.626	0.627
3	77	-0.354	0.630
4	101	0.281	0.732
5	39	0.500	0.565
<b>F</b>		<b>p value</b>	<b>Eta squared</b>
30.477		< 0.001	0.271

Source: Computed Data

### Star category differences

Performance rises steadily with star level. The one way ANOVA is significant with F equal to 30.477 and p less than 0.001, and the effect size is large with eta squared equal to 0.271. Higher categories benefit from better amenities, stronger service standards, and pricing power.

### Findings

The quality of service exhibits the most significant positive correlation with hotel performance, encompassing metrics such as occupancy, rate, revenue per room, profit per room, and online ratings. An elevated service quality score enhances the overall performance index in a clear and meaningful manner. Innovation also demonstrates a positive and beneficial relationship with performance. Hotels that implement straightforward digital tools and novel service concepts tend to excel in terms of pricing strength, guest attraction, and reputation. Cost efficiency primarily enhances performance through increased profit per room. While it has a lesser direct impact on price and revenue, it serves to protect margins and stabilize outcomes. Customer satisfaction partially mediates the effect of service quality on performance, as increased guest satisfaction leads to further improvements in overall results. Online reputation partially mediates the effect of innovation on performance, with improved reviews and ratings translating the value of new tools into stronger outcomes. Chain hotels surpass independent hotels on the performance index with a medium effect size. Metropolitan hotels outperform non-metropolitan hotels with a large effect size. Higher star ratings are associated with superior performance, with the disparity across star categories being substantial and statistically significant.

### Suggestions

Investment priorities should be strategically ordered to enhance service quality, beginning with the fundamental aspects of daily operations, such as front office management, housekeeping, food service, and maintenance. It is essential to establish standard operating procedures and checklists, alongside a service recovery playbook that includes time constraints and designated responsibilities. Short, weekly training and coaching sessions should be implemented to reinforce these standards.

Subsequent to these foundational improvements, targeted innovation should be pursued. This includes the implementation of digital check-in and check-out systems, channel management, and dynamic pricing strategies with clearly defined rules. Additionally, it is crucial to ensure a rapid response to online reviews, ideally within one day, and to automate repetitive tasks such as confirmations and feedback.



Cost efficiency must be enhanced without compromising guest experience. This can be achieved through energy management, scheduled maintenance to prevent breakdowns and waste, smart staff scheduling based on demand patterns, and vendor consolidation and renegotiation for high-expenditure items.

For independent hotels, adopting a light brand style, reviewing service standards, response scripts, and basic revenue rules is advisable. Sharing a cluster revenue manager across two or three properties, if feasible, can also be beneficial. Non-metro hotels should focus on direct domestic segments with weekend packages and events, while also prioritizing energy and procurement savings to bolster profits. Metro and chain hotels should intensify efforts in review management and premium add-ons, as the demand depth supports higher rates.

Quick wins within 30 days can be achieved by addressing the top five service pain points identified in reviews, establishing a one-day rule for review responses, activating simple upsell prompts at check-in and online, and initiating an energy walkthrough checklist for each shift.

## Conclusion

The study identifies a straightforward approach to enhancing hotel performance in Tamil Nadu, emphasizing the pivotal role of service quality. Innovation contributes additional benefits, particularly by enhancing online reputation. Cost efficiency ensures profitability and maintains consistent performance across different seasons. Performance variations are observed based on ownership type, location, and star level, indicating that strategies must be tailored to the local context. Managers are advised to first enhance fundamental service aspects, subsequently integrate appropriate digital tools, and finally consolidate gains through energy and process management. Adhering to this sequence is likely to increase guest satisfaction, strengthen pricing power, and improve long-term profitability.

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