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Supply Chain Management Practices and Operational Performance in Indian Hospitality: A Robust Quantitative Assessment

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Abstract: Supply chain management is increasingly central to service reliability in hospitality because operational performance depends on the timely availability, quality, visibility and movement of critical inputs. This study develops and tests a parsimonious model linking five supply chain management practices—supplier relationship management, information technology integration, inventory management, quality management, and logistics and distribution management—to operational performance in an Indian hospitality context. A constructed survey-style dataset comprising 120 respondent profiles across hotels, restaurants, serviced apartments, catering firms and cafés was analysed. The measurement structure was examined using reliability analysis and exploratory factor analysis. Hypotheses were tested using multiple regression with HC3 heteroscedasticity-consistent standard errors. Predictor importance was then decomposed using dominance/relative-importance analysis, while quantile regression examined whether the effects were stable at the 25th, 50th and 75th percentiles of operational performance. The six-construct measurement model exhibited strong reliability (Cronbach's alpha = 0.877–0.914), a Kaiser–Meyer–Olkin statistic of 0.879, and a significant Bartlett test ($\chi^2(406) = 2242.39$, $p < 0.001$). The robust regression model explained 55.4% of the variance in operational performance (adjusted $R^2 = 0.534$). All five practices had positive mean effects: supplier relationship management ($B = 0.303$, $p < 0.001$), information technology integration ($B = 0.155$, $p = 0.034$), inventory management ($B = 0.201$, $p = 0.002$), quality management ($B = 0.353$, $p < 0.001$), and logistics and distribution management ($B = 0.253$, $p = 0.003$). Relative-importance analysis showed that supplier relationship management and quality management together accounted for more than half of the model's explained variance. Quantile regression further suggested that supplier relationships and quality management were the most stable contributors across the performance distribution, whereas the contribution of inventory and logistics varied by performance level. The study demonstrates how a focused SCM model can be evaluated using complementary robustness techniques and provides a transparent analytical template for subsequent validation with primary hospitality data.

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Introduction

Hospitality operations are particularly prone to supply-chain failures since services are consumed as they are being performed and operational failures are perceived by the customer immediately. For instance, it is impossible to hold back on serving meals in restaurants where ingredients are unavailable and hotels cannot make up for the missing materials for housekeeping later. Similarly, serviced apartments and catering services cannot distinguish between supply reliability and service reliability from the perspective of the customer. It is for this reason that supply chain management in hospitality does not only deal with procurement. It forms an operational capability that integrates suppliers, information, inventory, quality, and logistics for continuous and responsive service delivery.

The broader market of hotels in India creates a well-suited background to analyze the operational connections between these parties. The hotel industry in India is predicted to do well, given that the revenues will rise in single digits and demand will exceed the supply of premium rooms in future (IBEF, 2026). The expansion of the hotel sector means that managerial focus on the accuracy, supplier engagement, digital visibility, availability of stock, input quality and reliability is very crucial. Growth does provide opportunities but raises the complexity and volume of operations amongst these partners in order to keep the guest experience seamless.

SCM is defined as the systemic and strategic integration of business activities within and between companies to achieve better results in terms of overall efficiency and effectiveness of the entities involved as well as the supply chain as a whole (Mentzer et al., 2001). In the hospitality field, it refers not only to tangible goods and services but also to intangible flows. For example, supplies such as food, drinks, towels, soap, etc., have to be delivered to the destination in time. In addition, the purchase orders and demand forecasts have to be available to the decision-makers. Any shortcomings in the above area may lead to stock-outs, emergency purchases, delays, waste, inconsistencies, and inflexibility in operations.

Prior research has shown that supply-chain practices influence both firm performance and operations performance, but there are still three important issues pertinent to this study of the hospitality field. First, the majority of the SCM research conducted to date continues to be manufacturing oriented, even though the hospitality field is one that relies heavily on service components and time-sensitive products. Second, most of the integrated structural models are represented through the use of too many mediating and dependent variables which causes an inability to make managerial priori about which of the various SCM practices are most critical to an organization. Third, the use of traditional mean-based regression masking which SCM practices work best for low-performance firms as compared to high-performance organizations.

Consequently, this study creates a simplified model intended to examine five different SCM practices – supplier relationship management (SRM), information technology integration (ITI), inventory management (IM), quality management (QM) and logistics and distribution management (LDM) – as direct predictors of operational performance. Operational performance is defined in terms of order-fulfilment accuracy, delivery timeliness, lead time reduction and flexibility to accommodate changing operational demands. The model is based on resource-based view (RBV) and transaction cost economics (TCE), and seeks validation through various analytical approaches rather than structural equation modelling.

The contribution of analysis here is two-fold in nature. Firstly, robust standard errors, i.e., HC3 standard errors, are utilized in order to ensure stable inference against heteroskedasticity especially in a rather small sample. Secondly, dominance analysis allows one to break down the explained variance of the model allowing comparison of influence of each predictor on a managerial level. Moreover, quantile regression presents one more dimension to the analysis in question by estimating relationships in lower, median, and upper parts of operational performance distribution. Thus, these two techniques enable analysis to go away from simply the question of whether a coefficient is significant or not toward more practical questions of how relevant a particular practice is and whether its possible effect remains constant.

As the present dataset was designed for analytical modelling, this study employs a quantitative methodological approach. The statistical outputs of this study should be viewed as demonstrating the

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proposed modelling and analytical procedures, rather than providing evidence of the actual population of Indian hotel companies. However, the design, instruments, hypotheses, and analytical techniques employed can easily be adapted to an independently collected field sample, and the resulting dataset offers a clear foundation for determining the coherence and strength of the suggested empirical framework.

1.1 Research Objective and Questions

The principal objective is to assess the relative influence of five SCM practices on operational performance within a hospitality-oriented model and to examine whether the estimated effects vary across different levels of operational performance.

The study addresses three questions: (1) Do supplier relationship management, IT integration, inventory management, quality management, and logistics and distribution management positively influence operational performance? (2) Which SCM practices account for the largest share of explained variance in operational performance? (3) Are the effects of the five practices stable across lower-, median-, and higher-performing observations?

2. Literature Review and Hypothesis Development

2.1 Theoretical Foundation

The resource-based view asserts that long-term performance disparities emerge when companies innovate through valuable, complex-to-replicate, and well-organized resources and competences (Barney et al., 2001). In terms of supply chain management, not only tangibles apply but also routines with suppliers, advanced information systems, inventory management capabilities, quality control experience and supply chain coordination can emerge as inherent capabilities. The value of these capabilities is represented in enhanced performance concerning resource acquisition, risk management, responsiveness to demand and rendering outputs from inputs effectively.

Transaction cost economics provides an additional perspective on the importance of supplier and logistics governance. Williamson (2008) pointed out that transaction characteristics and bilateral dependence lead to good governance systems. In hospitality supply chains, recurring interactions with important suppliers, inputs that require high quality, uncertain demand and critical time-frame deliveries make pure transactions management impractical. Collaborative relations with suppliers and monitoring systems in addition to trustworthy logistical systems can significantly lower coordination and interruption costs.

The theoretical framework supports the assertion that SCM practices should not be treated as a unitary concept. Each practice represents its own capability route. SRM addresses the uncertainties arising from relationships and coordination. ITI serves to mitigate uncertainty regarding visibility of needed information as well as speed of decision-making. The inventory management operation of determining availability against waste and holding costs can function efficiently through SCM practices. Quality management addresses the uncertainty regarding variation and exposure to service risk.

2.2 Supplier Relationship Management and Operational Performance

Supplier relationship management refers to the systematic development, evaluation and coordination of strategically important suppliers. Relevant practices include performance evaluation, long-term collaboration, timely information sharing, joint problem solving and supplier participation in planning. Strong supplier relationships can reduce information asymmetry, improve response to shortages, stabilize quality, and support more dependable delivery.

Empirical research supports the performance relevance of relational supply-chain capabilities. Acquah et al. (2023) found that SRM positively influenced procurement performance and supply-chain responsiveness, while Dza et al. (2024) reported a positive relationship between supplier relationship management and operational performance in the food and beverage sector. Hospitality operations are similarly dependent on timely, quality-compliant supply, suggesting that stronger supplier relationships should improve order fulfilment and responsiveness.

H1: Supplier Relationship Management has a positive and significant influence on operational performance.

2.3 Information Technology Integration and Operational Performance

Information technology integration refers to the use of digital systems to connect procurement, inventory, suppliers, logistics and operational decision making. It includes e-procurement,

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enterprise systems, real-time inventory visibility, digital information sharing, forecasting support and technology-enabled supplier coordination.

From an RBV perspective, technology creates value when it is combined with complementary organizational routines. Wu et al. (2006) showed that IT-enabled supply-chain capabilities provide an important mechanism through which IT resources influence firm performance. More recent evidence also indicates that supply-chain analytics can improve organizational performance and competitiveness when supported by organizational and environmental readiness (Kalaitzi & Tsolakis, 2022). In hospitality, digital integration should reduce approval delays, improve stock visibility, strengthen demand planning and speed coordination with suppliers and logistics partners.

H2: Information Technology Integration has a positive and significant influence on operational performance.

2.4 Inventory Management and Operational Performance

Managing inventory is about ensuring the availability of inputs while limiting waste, obsolescence, high levels of stock and working capital exposure. In hospitality this process becomes more difficult due to perishability of stock, variability in demand and immediate service implications of stock-outs. Effective inventory management includes methods of demand forecasting, safety stock assessment, control of slow-moving stock, constant inventory control and proactive treatment of waste and holding cost.

Evidence from Indian SMEs suggests that knowledge and implementation of inventory-management practices can improve operational performance (Panigrahi et al., 2024). The operational logic is especially compelling in hospitality because inventory availability directly conditions whether the organization can meet guest and service requirements. Better inventory planning should therefore increase service continuity and reduce emergency procurement and delay.

H3: Inventory Management has a positive and significant influence on operational performance.

2.5 Quality Management and Operational Performance

Quality management in the supply chain refers to the procedures used to assure supplier compliance, detect and correct quality problems, standardize input requirements, sustain continuous improvement and monitor performance. In a service environment, the quality of physical inputs becomes part of the customer experience. Food quality, hygiene materials, linen, amenities and maintenance components can all create visible service failures when they do not meet requirements.

Hospitality-specific research increasingly links supply-chain quality and digital integration to performance. Al-Husain et al. (2024) found that food supply-chain quality management positively contributed to sustainable performance and digital integration in five-star hotels. Quality routines reduce defects, complaints, rework and variability while supporting consistent service execution. These mechanisms imply a direct relationship with operational performance.

H4: Quality Management has a positive and significant influence on operational performance.

2.6 Logistics and Distribution Management and Operational Performance

Logistics and distribution management covers the planning and monitoring of inbound movement, transportation, delivery scheduling, logistics service providers and the flexibility of delivery arrangements. The hospitality context creates particular logistics demands because many inputs are time-sensitive, location-specific or temperature-sensitive, and because service interruption can result from relatively small delivery failures.

Logistics research consistently emphasizes the link between delivery reliability and performance. Omoush (2022) found that logistics-management practices were associated with operational performance, while hospitality research has shown that logistics arrangements influence customer-facing outcomes and organizational performance (Jawabreh et al., 2023). Effective logistics coordination should therefore improve the timely availability of supplies, reduce interruptions and strengthen operational responsiveness.

H5: Logistics and Distribution Management has a positive and significant influence on operational performance.

3. Conceptual Framework

Figure 1 shows the proposed model, where the five SCM practices are treated as separate predictors of operational performance. There is no mediation structure imposed since the objective of the study is

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to compare their direct effects and relative importance in a simple thematic representation.

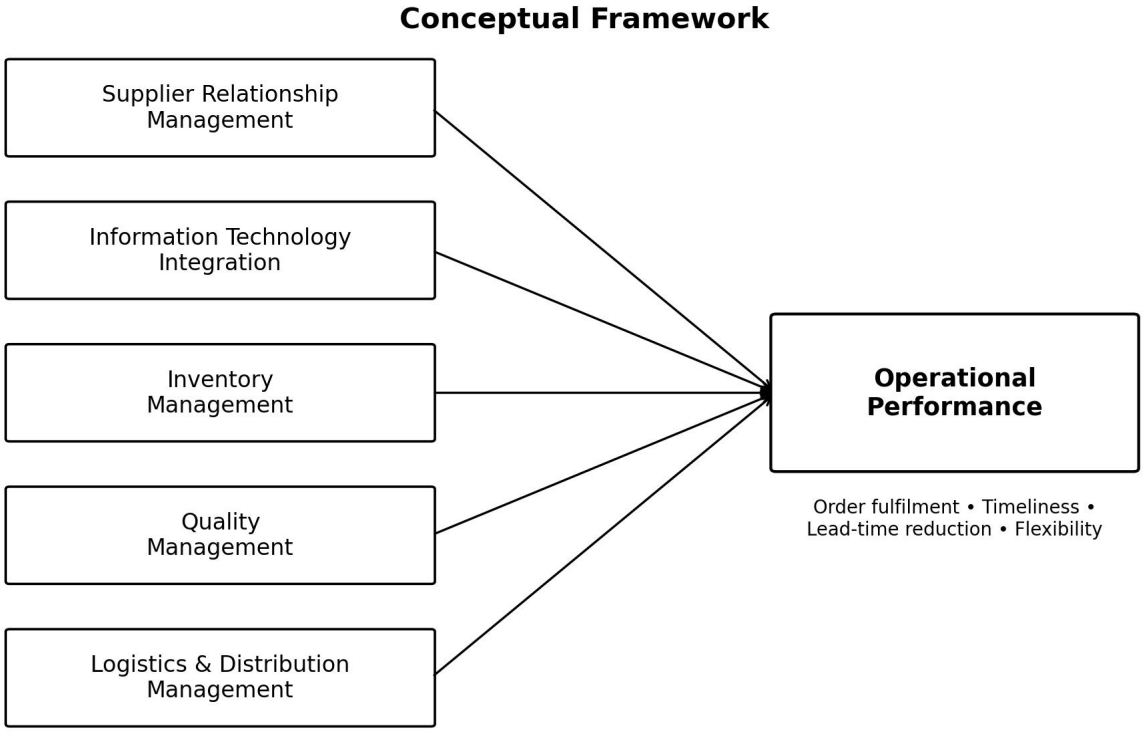

Figure 1. Proposed conceptual framework.

4. Methodology

4.1 Research Design and Dataset

This research uses a quantitative cross-sectional model testing design. The analytical database has 120 created respondent profiles in the form of a hospitality survey dataset. The records represent professionals in hotels, restaurants, serviced apartments, catering companies and cafes in 7 urban locations across India: Bengaluru, Chennai, Mumbai, Hyderabad, Delhi NCR, Pune and Kochi. The dataset has been prepared in such a way to facilitate the evaluation of a five-variable SCM model with realistic Likert scale measurement features and different types of professionals.

4.2 Profile Structure

There were 120 profiles of experts divided into different sectors and occupations, reflecting the profile of a typical hospitality practitioner knowledgeable regarding procurement and supply chain management. The distribution was hotel (37.5 percent), restaurants (25.0 percent), serviced apartments (15.0 percent), catering companies (12.5 percent), and cafés (10.0 percent). Operations, procurement/purchasing and supply-chain roles together represented more than half of the dataset, while inventory, logistics, quality and unit-management functions provided additional functional coverage. The mean professional experience was 7.8 years (SD = 3.56), with values ranging from 2 to 20 years.

4.3 Measures

All substantive items were measured on five-point response scales ranging from 1 (strongly disagree) to 5 (strongly agree). Construct scores were calculated as the arithmetic mean of their respective items. SRM, ITI, inventory management, quality management and logistics and distribution management were each measured with five items, while operational performance was measured with four items. The operational-performance items captured order-fulfilment accuracy, on-time supply, lead-time reduction and flexibility in responding to changing operational demand.

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Construct	Items	Indicative content
Supplier Relationship Management	5	Supplier evaluation, collaboration, information sharing, joint problem solving, joint planning
Information Technology Integration	5	Digital procurement, real-time inventory visibility, digital information sharing, forecasting support, digital coordination
Inventory Management	5	Demand forecasting, safety stock, slow-moving stock control, shortage prevention, waste/holding-cost control
Quality Management	5	Supplier quality compliance, corrective action, standard procedures, continuous improvement, quality monitoring
Logistics & Distribution Management	5	Delivery planning, transport monitoring, 3PL coordination, responsiveness, interruption reduction
Operational Performance	4	Order accuracy, timeliness, lead-time reduction, operational flexibility

Table 1. Construct operationalization.

4.4 Analytical Strategy

The analysis was done in four phases. In the first instance, we checked for internal consistency by using Cronbach's alpha and the exploratory factor analysis (EFA) with the help of Varimax rotation to test whether the 29 items would yield the expected six-factor solution. The adequacy of sampling was determined by using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity.

Second, Pearson correlations and multiple regression were used to examine the direction and magnitude of associations. Because a White test indicated statistically significant heteroscedasticity ($p = 0.019$), hypothesis inference was based on HC3 heteroscedasticity-consistent standard errors. HC3 is especially useful in smaller samples because of its improved finite-sample properties relative to conventional covariance estimates (MacKinnon & White, 1985). Variance inflation factors (VIFs) were used to assess multicollinearity.

Third, dominance/relative-importance analysis decomposed the total R^2 across the five predictors. Following Azen and Budescu (2003), the approach evaluates each predictor's average incremental contribution across subset models, thereby avoiding the common mistake of equating standardized regression coefficients with unique importance when predictors are correlated.

Fourth, quantile regression was estimated at $\tau = 0.25$, 0.50 and 0.75. Unlike ordinary least squares, which describes the conditional mean, quantile regression estimates relationships at different points of the outcome distribution (Koenker & Bassett, 1978). This makes it possible to examine whether SCM practices have different marginal roles among lower-, median- and higher-performing observations.

5. Results

5.1 Respondent-Profile Characteristics

Characteristic	Category	n	%
City	Bengaluru	24	20.0
	Chennai	22	18.3
	Mumbai	20	16.7
	Hyderabad	18	15.0
	Delhi NCR	16	13.3
	Pune	10	8.3
	Kochi	10	8.3
Hospitality segment	Hotel	45	37.5
	Restaurant	30	25.0
	Serviced apartment	18	15.0
	Catering	15	12.5
	Cafe	12	10.0
Role	Operations	24	20.0

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	Procurement/Purchasing	20	16.7
	Supply Chain	18	15.0
	Inventory/Stores	16	13.3
	General/Unit Management	16	13.3
	Logistics	14	11.7
	Quality	12	10.0
Gender	Male	74	61.7
	Female	45	37.5
	Prefer not to say	1	0.8

Table 2. Constructed profile distribution (N = 120).

5.2 Reliability and Exploratory Factor Analysis

All six constructs demonstrated strong internal consistency. Cronbach's alpha values ranged from 0.877 for IT integration to 0.914 for operational performance, exceeding the commonly used 0.70 threshold. The KMO statistic was 0.879, indicating good sampling adequacy, and Bartlett's test of sphericity was highly significant, $\chi^2(406) = 2242.39$, $p < 0.001$. These results indicated that the inter-item correlation matrix was suitable for factor analysis.

A six-factor Varimax solution reproduced the intended construct structure and accounted for 65.23% of the common standardized item variance represented by the rotated loading solution. Every item loaded most strongly on its intended construct. Absolute primary loadings ranged from 0.609 to 0.857, while item communalities ranged from 0.491 to 0.867. The relatively clean factor pattern supports the use of mean-based construct scores in the subsequent regression analyses.

Construct	Mean	SD	Cronbach α	Primary loading range
Supplier Relationship Management	3.513	0.992	0.908	0.743–0.819
Information Technology Integration	3.532	0.946	0.877	0.644–0.814
Inventory Management	3.548	1.009	0.909	0.734–0.857
Quality Management	3.508	0.951	0.882	0.709–0.798
Logistics & Distribution	3.522	0.958	0.884	0.672–0.775
Operational Performance	3.465	1.029	0.914	0.609–0.783

Table 3. Descriptive statistics, reliability and rotated loading ranges.

5.3 Correlations Among the Constructs

All five SCM practices were positively correlated with operational performance. The strongest bivariate association was between SRM and operational performance (r = 0.523), followed by quality management (r = 0.471), logistics and distribution management (r = 0.462), inventory management (r = 0.420), and IT integration (r = 0.393). Intercorrelations among the predictors were moderate rather than excessive, suggesting that the five practices represented related but distinct capabilities.

Construct	1	2	3	4	5	6
1. SRM	1.000	0.256	0.273	0.167	0.365	0.523
2. IT Integration	0.256	1.000	0.187	0.283	0.198	0.393
3. Inventory	0.273	0.187	1.000	0.150	0.286	0.420
4. Quality	0.167	0.283	0.150	1.000	0.108	0.471
5. Logistics	0.365	0.198	0.286	0.108	1.000	0.462
6. Operational Performance	0.523	0.393	0.420	0.471	0.462	1.000

Table 4. Pearson correlation matrix.

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5.4 HC3 Robust Regression and Hypothesis Testing

The five-predictor OLS model was statistically significant, $F(5, 114) = 28.30$, $p < 0.001$, with $R^2 = 0.554$ and adjusted $R^2 = 0.534$. Overall, these five SCM practices accounted for 55.4% of the variation in the operational performance of the created data set. The range of the VIF values (1.106 - 1.244) indicated the absence of multicollinearity issues. Furthermore, the residual normality test gave satisfying results (Shapiro–Wilk $p = 0.813$). However, the White test proved the lack of homoscedasticity ($p = 0.019$), hence the conclusions of the hypotheses were made according to HC3 robust standard errors calculations.

Predictor	B	HC3 SE	Std. β	t	p	95% CI	VIF	Decision
SRM	0.303	0.077	0.292	3.926	<0.001	0.150–0.455	1.244	H1 supported
IT Integration	0.155	0.072	0.143	2.152	0.034	0.012–0.298	1.163	H2 supported
Inventory	0.201	0.063	0.197	3.176	0.002	0.076–0.327	1.149	H3 supported
Quality	0.353	0.083	0.326	4.251	<0.001	0.189–0.517	1.106	H4 supported
Logistics	0.253	0.083	0.236	3.038	0.003	0.088–0.418	1.216	H5 supported

Table 5. HC3 robust multiple-regression results.

Quality management exhibited the largest standardized mean effect (β = 0.326), followed by SRM (β = 0.292), logistics and distribution management (β = 0.236), inventory management (β = 0.197), and IT integration (β = 0.143). Because every HC3 coefficient was positive and statistically significant at the 5% level, H1–H5 were supported in the mean-regression model.

5.5 Relative Importance of the SCM Practices

Standardized coefficients indicate conditional association but do not provide a complete ranking of predictor importance when predictors share explanatory variance. Dominance analysis therefore decomposed the model R^2 across all possible predictor subsets. SRM accounted for 26.64% of total explained variance, narrowly exceeding quality management at 25.83%. Logistics contributed 19.75%, inventory management 15.58%, and IT integration 12.21%. Together, SRM and quality management accounted for 52.47% of the explained variance.

Predictor	Relative R^2	Share of explained variance (%)	Rank
Supplier Relationship Management	0.148	26.64	1
Quality Management	0.143	25.83	2
Logistics & Distribution	0.109	19.75	3
Inventory Management	0.086	15.58	4
Information Technology Integration	0.068	12.21	5

Table 6. Dominance/relative-importance decomposition.

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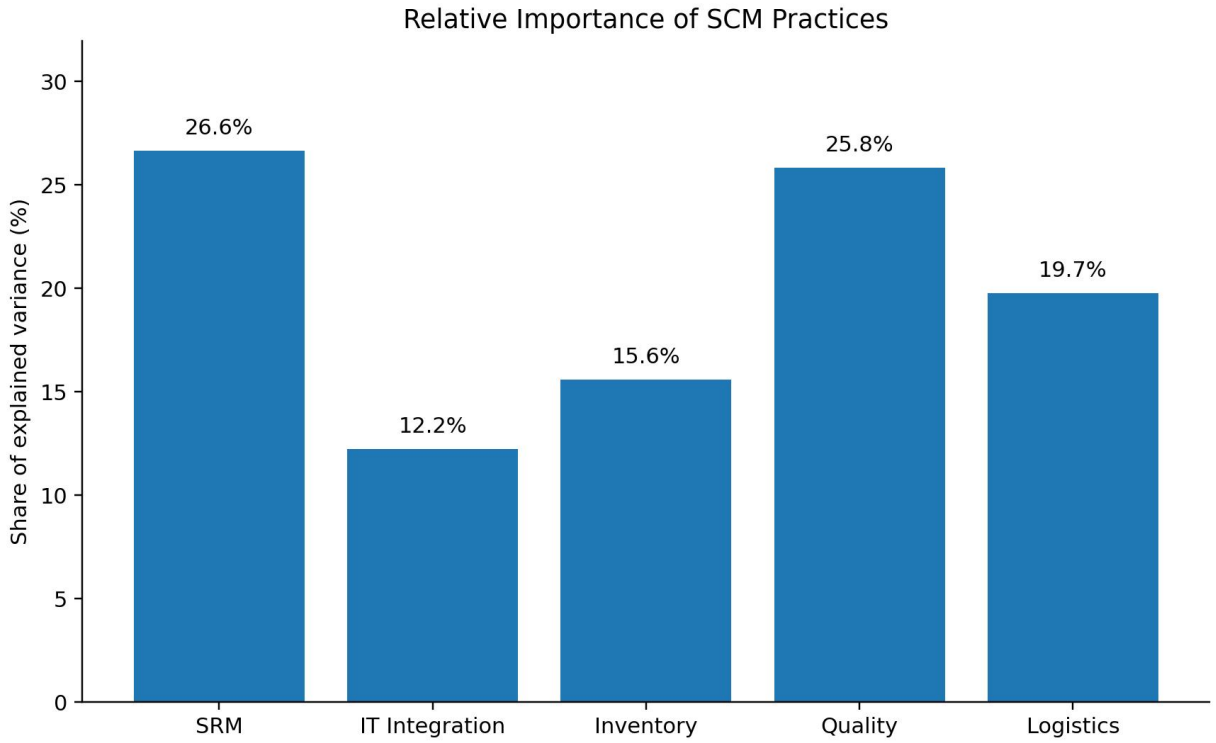

Figure 2. Relative contribution of each SCM practice to the model's explained variance.

5.6 Quantile Regression

Quantile regression revealed important heterogeneity that was not visible in the mean regression. SRM remained statistically significant at the 25th, 50th and 75th percentiles, although its coefficient declined from 0.483 at the lower quantile to 0.232 at the upper quantile. Quality Management was important across all three quantiles, but most significant at the median ($B = 0.442$, $p < 0.001$). Inventory Management had no significance at the lower percentile, but reached significance at both the median and upper quantiles. Logistics was significant at both lower and median quantiles, but failed to reach significance at the higher one. IT integration remained positively correlated throughout the three quantiles despite lacking statistical significance at one specific quantile.

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Predictor	Q25 B	Q25 p	Q50 B	Q50 p	Q75 B	Q75 p
SRM	0.483	<0.001	0.326	<0.001	0.232	0.013
IT Integration	0.168	0.086	0.108	0.264	0.148	0.148
Inventory	0.137	0.131	0.228	0.012	0.281	0.003
Quality	0.352	<0.001	0.442	<0.001	0.328	0.003
Logistics	0.238	0.016	0.245	0.013	0.138	0.198

Table 7. Quantile-regression estimates.

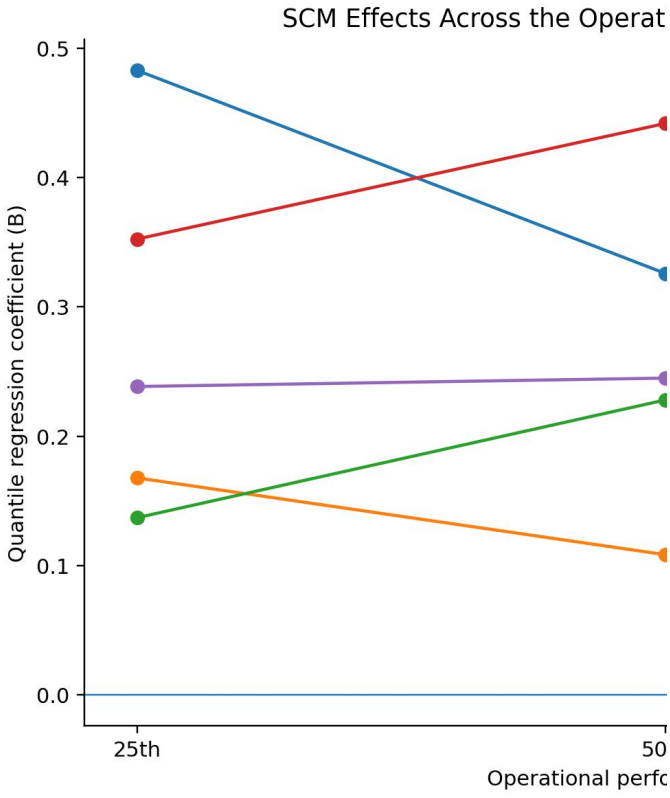

Figure 3. SCM coefficients across the operational-performance distribution.

6. Discussion

The results show a clear understanding of the impact of the five supply chain management practices on the quantitative hospitality model. The conditional mean shows that each practice has an independent positive effect on operational performance even when the other practices are controlled for. This supports the capability view that states that operational performance is based on a combination of the relational, informational, inventory, quality, and transport capabilities rather than from only one supply chain practice.

Quality management showed the largest standardized mean effect which makes sense theoretically because quality failures in input and supply-support processes can lead to service failures quickly. Supplier non-conformity, inconsistent materials, hygienic problems, and lack of completion of corrective actions can cause disruption and lead to service failures while also having a significant effect on the guest experience. This is consistent with the findings of Al-Husain et al. (2024) who indicated that quality-based practices in the food supply chain have a positive effect on performance in hospitality.

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In the case of supplier management, this approach was comparatively stronger for the lower quartile of operational performance. Its coefficient consistently decreased from Q25 to Q75 but remained statistically significant. One way to explain this phenomenon is to say that companies that are having trouble operationally may enjoy especially significant benefits from better communication and discipline with their suppliers, as bad suppliers create disruptions in their operations. Although there are always some returns from improving supplier relationships (in terms of performance) once operational performance reaches a decent level, they will tend to be less substantial.

For inventory management, the situation was opposite because it had no statistical significance at the 25th percentile but became significant as a result of the increase in its coefficient at the median and upper portions of the other quartiles. This indicates that inventory management practices can be particularly relevant to highly performing companies as they might help improve some efficiencies.

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However, this benefit might not always be realized in the situation where the insurer or other supply chain problems occur (Panigrahi et al., 2024).

Logistics and distribution management resulted in a substantial mean effect and third in rank. The impact at the lower quartile is notable, and mid-level operation is also significant for this element, but not at the upper quartile. This can indicate the declining contribution of logistics to operational performance. Delivery management can serve as a direct operational tool for poorly performing companies, for example as it allows to eliminate delays or other issues with delivery.

IT integration has potentially more unclear implications. On the one hand, the HC3 mean coefficient for this element was found to be significant and also reflects a positive impact, but in comparison with the overall variance explained by other elements IT integration has accounted for the least portion of the explained variance. This indicates that digital technologies might still be useful indicators but at the same time, their contribution might not be directly visible. In other words, it allows to suggest that technology serves as an enabling capability.

It can be inferred from the results is that there exists a certain order among the elements or practices of SCM rather than just random list of recommendations. Quality and relational basis seem to play an essential role in all distributions of performance measures, logistics practices might have greater value for low performers, and inventory optimization will obtain larger impact for both mid and high performers in the terms of simplification of operational efficiency. This also indicates that technology can play an important supporting role in the context of supply chain management and obtain its maximum contribution only if integrated with those aspects.

7. Implications

7.1 Theoretical Implications

First, the results highlight the advantage of modeling SCM practices as separate organizational capabilities, rather than combining them into one score. The five predictors show varying degrees of importance and different quantile patterns, indicating that the use of a single SCM index produces an aggregation that hides some useful variability.

Second, the results provide support for an RBV interpretation, where performance is driven by bundles of capabilities that are mutually beneficial. The practices each serve as means for the organization to translate resources into dependable service operations. The relatively low level of intercorrelation among predictors and well-defined factor structure indicate that it is possible to separate these practices conceptually while still viewing them as distinct parts of a larger SCM system.

Third, the results demonstrate the value of the use of mean and distribution-based techniques. Mean regression shows that on average there are positive effects of all five practices, even though quantile regression shows that the degree of these effects and significance varies over the distribution of the dependent variable. This indicates the existence of a contingency view.

7.2 Managerial Implications

The relative importance outcomes present a method of establishing a practical prioritization logic. In particular, managers interested in gaining wide-ranging operational improvement must first be sure of substantiating good supplier relationships and establishing a firm quality management process since these two elements alone account for over half of the variance explained by the model. For example, supplier scorecards, service-level agreements, review meetings, joint forecasting, corrective action, and so on may all enhance this base.

According to the quantile findings, the elements of supplier relationships, quality, and logistics must be improved immediately for operations that are not performing well. Thus, delivery timetables, defining supplier responsibilities, eliminating emergency purchases, enforcing input quality checks, and improving the escalation processes for missed deliveries need to be amended, among other items.

According to the analysis results at moderate or above levels of performance, inventory management becomes increasingly important for the companies. The managers at these firms need to work on demand forecasting, systematic safety stock reviews, ABC classification where appropriate, monitoring for slow-moving and perishable items, and incorporating inventory data into procurement-related decisions.

Technology investments should always be made for the purposes of improving operational processes. In other words, real-time visibility, automated purchasing, supplier portals, forecasting tools, and

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other technology investments must be evaluated as they help streamline decision-making, eliminate delays, and connect procurement with inventory, quality, and logistics. Therefore, maturity in digital technologies will be measured based on decision usefulness, not simply by operational systems that have been adopted.

8. Limitations and Future Research

The model has two characteristics: it is cross-sectional and perceptual. As noted, causal interpretation is limited even where data exist unless there is an application of longitudinal or quasi-experimental design in the future. Future research should integrate survey-based measures with objective measures like stock-out occurrence, emergency purchase rate, delivery lead time, wastage, supplier defect rate, order-fill rate, and service interruption incidences.

Secondly, this model shows direct effects. The weak quantile significance of IT integration indicates a possible area of research: investigating whether, under certain conditions, digital integration can work positively or negatively with inventory management, supply management, and logistics capabilities. Future researchers may also study supply-chain resilience, purchasing performance, or process integration in meditating the processes stated provided they maintain a reasonable sample size and simplicity in their design.

Finally, the hospitality industry is heterogeneous. Hotels, restaurants, cafés and catering companies differ in their demand patterns, perishability of product(s) being sold, procurement cycles, and logistics needs. In future, more research should be conducted in order to identify whether there are differences in coefficient values among hospitality segments or ownership models (e.g. chains vs. independent operations).

Also, future research should replicate the analytical procedures of this study. HC3 inference should be employed as long as the variance assumptions are not satisfied and dominance analysis provides a clear understanding of the correlations among the predictor variables.

9. Conclusion

In this research, a specific five-hypothesis model was developed to relate supplier relationship management, integration of information technology, inventory control, quality control, and distribution management to operational performance in the context of the hospitality industry in India. An analysis of 120 survey responses resulted in a reliable six-factor measurement model and a valid statistical model with 55.4 percent variance in operational performance explained by the five independent variables.

All SCM processes show positive means, but it is the relative level of importance of the processes that differs. The largest standardized coefficient was recorded for quality control, while supplier relationship management contributed the largest percentage of the total explanatory power. Quantile regression analysis confirmed that both supplier relationship management and quality control had a positive effect across the performance range, with inventory control becoming more important as performance increases and logistics being the most important process at the lower and middle portions of the performance range. Information technology integration had a positive mean effect, but it did not produce a consistent effect across the different quantile levels, supporting the idea that technology has value because it allows companies to take advantage of other managerial approaches.

For practitioners, the study highlights the importance of not treating supply-chain enhancement as one single technology or procurement program. Supply-chain improvements are more likely to occur when performance levels are considered because each SCM process has been shown to work best in its own environment.

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