



The Mediating Role of Service Innovation in the Relationship between Entrepreneurial Orientation and Firm Performance: Evidence from Star-Rated Hotels in Sarawak

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Abstract:

Service innovation is often the mechanism that explains why entrepreneurial orientation translates into superior outcomes in service-based industries. Yet, in hospitality, especially in emerging-economy contexts, evidence on whether service innovation mediates the relationship between entrepreneurial orientation and performance remains limited. This study examines star-rated hotels in Sarawak, Malaysia, by investigating whether entrepreneurial orientation enhances service innovation and whether service innovation, in turn, explains performance differences among hotels. A cross-sectional survey was administered to managers of one- to five-star hotels ($n = 73$), and the hypotheses were examined using structural equation modeling with bootstrapped indirect effects. The results show that entrepreneurial orientation positively influences service innovation and that service innovation, in turn, positively influences firm performance. Crucially, the indirect pathway is significant and indicates full mediation, suggesting that entrepreneurial orientation improves performance primarily by stimulating service innovation. In practical terms, entrepreneurial posture yields measurable gains when hotels translate it into deliberate service improvements—such as redesigning service processes, integrating enabling technologies, and enhancing guest experiences. By positioning service innovation as the mediating capability that converts entrepreneurial orientation into performance outcomes, this study extends entrepreneurial orientation theory to a service context and guides hotel managers in pursuing sustainable performance beyond price-based competition.

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INTRODUCTION

Tourism is a key pillar of Sarawak's economy. Branded as the "Land of the Hornbill," the state leverages its strengths in Culture, Adventure, Nature, Food, and Festivals (CANFF) to attract domestic and international visitors. In 2023, Sarawak received about 3.92 million visitors and generated roughly RM9.99 billion in tourism receipts, recovering to around 85% of pre-pandemic levels (Dayak Daily, 2024). This rebound underscores the sector's importance for income generation, employment, and regional development in East Malaysia.

The state government's Post COVID-19 Development Strategy 2030 (PCDS 2030) positions tourism as a high-value, sustainable, and digitally driven growth engine (Sarawak Government, 2021). Policy documents emphasize innovation, digitalization, and service excellence as central to competitiveness, especially for tourism

operators that create and manage visitor experiences such as hotels (Sarawak Government, 2021). For star-rated hotels, this policy environment creates both opportunities and pressure to strengthen innovation capabilities that can sustain performance in increasingly dynamic markets.

At the same time, hotel operators face persistent operational challenges. Rising costs of utilities, maintenance and staffing, coupled with fluctuating demand and competition from alternative accommodation providers, have squeezed margins and have heightened concerns about price sensitivity among tourists. Public statements by state tourism authorities have warned that cost-driven increases in room rates may erode destination competitiveness if not matched by commensurate improvements in service value (The Borneo Post, 2023). These conditions signal that cost-based strategies alone are insufficient and that hotels must reconfigure their resources and processes to deliver distinctive, value-adding services.

Within this context, service innovation, understood as systematic changes to service concepts, delivery processes, technology use, and employee roles, has become a critical capability for hotels that seek to enhance guest experiences and firm performance (Den Hertog et al., 2010; Agarwal & Selen, 2009). Prior hospitality research shows that innovation in services and processes improves customer satisfaction, occupancy, and financial outcomes (Shamim et al., 2017; Horng et al., 2016; Lahap et al., 2016), but empirical work has focused predominantly on innovation more broadly, on manufacturing settings, or on hotels in developed economies.

Despite this relevance, the hospitality innovation literature has often relied on broad or product-oriented innovation measures, while service-innovation-specific evidence in hotels remains comparatively fragmented (Gomezelj, 2016; Enz, 2012). Moreover, empirical work has rarely examined how entrepreneurial orientation is translated into firm performance through a capability lens, particularly in emerging destinations where institutional and market conditions may differ from those in mature tourism economies (Grawe et al., 2009; Grisseman et al., 2013). Accordingly, this study addresses this gap by examining the direct effect of entrepreneurial orientation on firm performance and its indirect effect through service innovation capability among star-rated hotels in Sarawak. By integrating the Resource-Based View and Dynamic Capabilities perspectives, the study clarifies a mechanism in which entrepreneurial orientation functions as a strategic resource, and service innovation capability acts as a dynamic capability that transforms this resource into performance outcomes.

Research Problem

Entrepreneurial Orientation is widely recognized as a strategic posture that encourages opportunity-seeking, risk-taking, and proactive market behavior. In hospitality and tourism, entrepreneurial orientation has been linked to higher levels of innovation and performance; studies in hotel and tourism contexts across Iran, Switzerland, Hong Kong and New Zealand, for example, show that entrepreneurial and market-oriented hotels tend to achieve superior service innovation and performance outcomes (Au & Tse, 1995; Tajeddini, 2009, 2010; Tajeddini & Trueman, 2012).

However, much of this work either (i) examines entrepreneurial orientation in aggregate with other strategic orientations, (ii) focuses on product or technological innovation, or (iii) models' entrepreneurial orientation and performance relationships without explicitly testing service innovation as the mediating mechanism.

In emerging-economy and service-dominant settings such as Malaysia, the relationship between entrepreneurial orientation and performance remains under-specified both theoretically and empirically

(Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005; Miller, 2011). Most existing studies on entrepreneurial orientation have focused on manufacturing or Western contexts and often report mixed or contingent effects of entrepreneurial orientation on performance (Bhuian et al., 2005; Kocak et al., 2017). Empirical evidence from Malaysia's hotel sector suggests that innovation capabilities are central to performance. However, the translation of entrepreneurial orientation into service innovation and, subsequently, into firm performance has not been systematically examined (Hilman & Kaliappen, 2015; Kaur & Gupta, 2024). Consequently, the central research question of this study is: to what extent does service innovation act as the capability through which entrepreneurial orientation is converted into superior firm performance in star-rated hotels in Sarawak? Addressing this question is important for both theory and practice. Theoretically, it clarifies the mechanism underlying the relationship between entrepreneurial orientation and performance in service contexts. In practice, it provides guidance to hotel managers and policymakers on how to build and leverage service innovation capabilities to support Sarawak's tourism and PCDS 2030 aspirations.

Accordingly, this study examines the relationships among entrepreneurial orientation, service innovation, and firm performance in star-rated hotels in Sarawak, Malaysia. Specifically, it investigates whether entrepreneurial orientation positively influences service innovation, whether service innovation improves firm performance, whether entrepreneurial orientation retains a direct effect on firm performance, and whether service innovation mediates the relationship between entrepreneurial orientation and firm performance. By positioning service innovation as the mediating capability that links entrepreneurial orientation to firm performance, the study seeks to deepen understanding of how entrepreneurial posture and service innovation collectively enhance performance in the hospitality sector.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The literature review presents the theoretical underpinnings and empirical evidence supporting this study's investigation of the relationships between entrepreneurial orientation, service innovation, and firm performance within the hospitality sector. It discusses the relevant theories, specifically the Resource-Based View (RBV) and Dynamic Capabilities (DC), which provide the foundation for understanding how firms develop and sustain competitive advantage in dynamic environments. The review also synthesizes prior research to explain how entrepreneurial orientation functions as a strategic resource that fosters innovation, how service innovation enhances firm outcomes, and how these two concepts interact to influence firm performance. Finally, it outlines the development of the study's hypotheses and research framework, which integrates these theoretical perspectives within the context of Sarawak's star-rated hotels.

Theoretical Foundation: Resource-Based View (RBV) and Dynamic Capabilities

To frame the proposed relationships, this study draws on RBV (Barney, 1991; Wernerfelt, 1984) and the DC perspective (Teece, Pisano, & Shuen, 1997). RBV suggests that firms build a durable advantage when they control resources that meet the VRIN conditions—valuable, rare, difficult to imitate, and non-substitutable. In the hotel context, these resources are frequently intangible and socially complex. Examples include frontline service competence, leadership routines that enforce service standards, consistent service recovery systems, and relationship-building capabilities that strengthen guest loyalty. Because these assets are shaped through experience and organisational learning, competitors cannot easily reproduce them.

That said, hotels operate in environments in which customer expectations and service-delivery technologies evolve rapidly. RBV helps identify strategic assets, but it does not fully explain how firms

remain competitive as the “rules of the game” continue to shift. The DC perspective extends the logic by focusing on renewal: firms must be able to integrate and reconfigure competencies as the environment changes. In hospitality, this adaptive strength is commonly expressed through ongoing service innovation, revising service processes, improving employee-enabled delivery, and selectively using technology to enhance the guest experience.

Based on this integration, entrepreneurial orientation is treated as a strategic intangible resource that motivates opportunity-seeking and experimentation, while service innovation is conceptualised as a dynamic capability that operationalises these intentions into visible improvements in how services are designed and delivered, ultimately shaping firm performance.

Entrepreneurial Orientation and Service Innovation

Entrepreneurial orientation refers to an organisation’s tendency to pursue innovation, act proactively ahead of competitors, and accept calculated risk (Lumpkin & Dess, 1996). In RBV terms, it can be viewed as a strategic intangible resource because it shapes how managers interpret opportunities and how aggressively the hotel commits to change initiatives (Covin & Wales, 2019). In hospitality settings, entrepreneurial orientation is rarely abstract; it manifests in practical routines such as systematically monitoring guest feedback, trialling new service concepts at selected touchpoints, and reallocating resources quickly when market signals shift.

The literature supports the expectation that entrepreneurial orientation fosters stronger innovation behaviour. Empirical work has linked entrepreneurial orientation to higher innovation intensity (Ferreira et al., 2017; Wikhamn et al., 2018) and greater adaptability to market change (Lee et al., 2016). Similar patterns are also reported in emerging-economy contexts, where entrepreneurial orientation continues to predict innovation and performance outcomes (Qasim et al., 2025). For star-rated hotels, this suggests that a stronger entrepreneurial posture should increase the likelihood of improving service design, refining delivery processes, and implementing service improvements that enhance guest value. Thus, this study proposes:

H1: Entrepreneurial orientation has a significant positive relationship with service innovation.

Service Innovation and Firm Performance

From a DC perspective, service innovation is one of the main ways service firms refresh and reconfigure what they already have, thereby sustaining performance under changing market and technological conditions (Agarwal & Selen, 2009; Teece et al., 1997). In hotels, service innovation is not limited to “new technology.” It also includes purposeful changes to the guest experience, service delivery design, digital engagement, and back-of-house efficiency. In line with the multidimensional view of service innovation, hotels can innovate by changing service concepts, processes, technology use, employee roles, and guest experience design (Den Hertog et al., 2010; Enz, 2012). Practical examples include self-service kiosks, mobile check-in, customized packages, redesigned room-service concepts, and analytics-enabled revenue management practices (Liu & Mattila, 2025; Nagy, 2012).

Hospitality research generally supports the expectation that service and process innovation contribute to stronger firm performance. Innovation-oriented hotels have been associated with improved competitiveness, higher customer loyalty, and better sales and profit growth across different regions and

hotel markets (Grissmann et al., 2013; Jogaratnam, 2017; Nagy, 2012; Rajapathirana & Hui, 2018; Wang & Juan, 2016). Evidence from Iran and Switzerland also indicates that learning and customer orientation support new service development and hotel performance (Tajeddini, 2009, 2010; Tajeddini & Trueman, 2012). Similarly, comparative work in Hong Kong and New Zealand suggests that hotels with stronger market and innovation orientation tend to outperform weaker competitors (Au & Tse, 1995).

More recent reviews and empirical syntheses further argue that service innovation can generate both efficiency improvements and revenue gains across service industries, although the magnitude of the effect depends on the type of innovation and the context (Gomezelj, 2016; Liu & Mattila, 2025; Rajapathirana & Hui, 2018). Despite this growing base of evidence, many hospitality studies still treat innovation as a broad umbrella construct or emphasise technology and product innovation without clearly framing service innovation as a dynamic capability that helps translate strategic orientations into performance outcomes (Agarwal & Selen, 2009; Den Hertog et al., 2010; Gomezelj, 2016). Responding to calls for mechanism-oriented research in service settings, this study treats service innovation as a distinct, multi-dimensional capability and examines its performance implications in the hotel context (Kaur & Gupta, 2024; Tsou et al., 2025). Therefore, the following hypothesis is proposed:

H2: Service Innovation has a significant positive relationship with Firm Performance.

Entrepreneurial Orientation and Firm Performance

Within the RBV tradition, entrepreneurial orientation is often viewed as a strategic resource that supports performance by shaping how firms identify opportunities and commit resources toward innovation and market positioning (Lumpkin & Dess, 2001; Wiklund & Shepherd, 2005). At the same time, empirical findings indicate that the entrepreneurial orientation–performance link is not always consistent or direct; the strength of the relationship often depends on whether firms possess the capabilities required to translate entrepreneurial posture into valuable outcomes (Hilman & Kaliappen, 2015; Miller, 2011).

In hotels, entrepreneurial orientation can be performance-relevant because it encourages proactive responses to market shifts and motivates service initiatives that create value beyond basic accommodation. For example, hotels that scan market signals more systematically and make faster decisions under uncertainty may adjust packages, distribution channels, or service offerings more quickly than slower rivals, potentially improving outcomes such as occupancy, customer loyalty, and revenue streams. However, the extent to which entrepreneurial orientation yields performance benefits likely depends on whether the hotel can implement and routinize innovation-related initiatives rather than treating them as ad hoc experiments. Based on this logic, the study proposes the following hypothesis:

H3: Entrepreneurial Orientation has a significant positive relationship with Firm Performance.

Mediating Role of Service Innovation

Bringing RBV and DC together, this study positions entrepreneurial orientation as an intangible strategic resource and service innovation as the capability through which that resource is converted into firm performance (Barney, 1991; Den Hertog et al., 2010; Teece et al., 1997; Wernerfelt, 1984). Entrepreneurial orientation reflects a hotel's willingness to innovate, act proactively, and accept calculated risk in pursuing opportunities (Covin & Wales, 2019; Lumpkin & Dess, 1996). On its own, however, an entrepreneurial posture does not automatically improve performance. Its value depends on

whether the organisation can translate entrepreneurial intent into repeatable initiatives that become part of day-to-day service delivery (Bhuian et al., 2005; Kocak et al., 2017; Qasim et al., 2025).

Service innovation represents that translation mechanism. It converts entrepreneurial ideas into new or improved service concepts, delivery processes, technology-enabled touchpoints, and employee practices that guests experience as higher value (Agarwal & Selen, 2009; Den Hertog et al., 2010; Liu & Mattila, 2025). In the hotel setting, this conversion may involve redesigning service scripts, integrating digital tools into the guest journey, co-creating service experiences with guests, or reconfiguring collaborations and partnerships that support bundled offerings (Grissmann et al., 2013; Nieves & Quintana, 2014; O’Cass & Sok, 2013). As these changes scale, they are expected to strengthen performance indicators such as customer satisfaction, occupancy, revenue growth, and competitive positioning (Jogarathnam, 2017; Nagy, 2012; Rajapathirana & Hui, 2018; Wang & Juan, 2016).

Although prior entrepreneurial orientation research frequently uses broad innovation measures as mediators, often outside hospitality and in mixed-sector samples (Calantone et al., 2002; Keskin, 2006; Kocak et al., 2017), the role of service innovation as a distinct mediating capability remains less developed, particularly in hospitality and emerging-market contexts (Kaur & Gupta, 2024; Tajeddini, 2010; Tajeddini & Trueman, 2012). Recent evidence from Asian and Malaysian hotel settings also suggests that strategic orientations influence performance largely through innovation-related capabilities, including service innovation (Hilman & Kaliappen, 2015; Kaur & Gupta, 2024; Tsou et al., 2025; Wu et al., 2023). Building on this stream, the present study tests service innovation as the mechanism linking entrepreneurial orientation to firm performance among star-rated hotels in Sarawak. The following hypothesis is therefore proposed:

H4: Service Innovation mediates the relationship between Entrepreneurial Orientation and Firm Performance

Research Framework

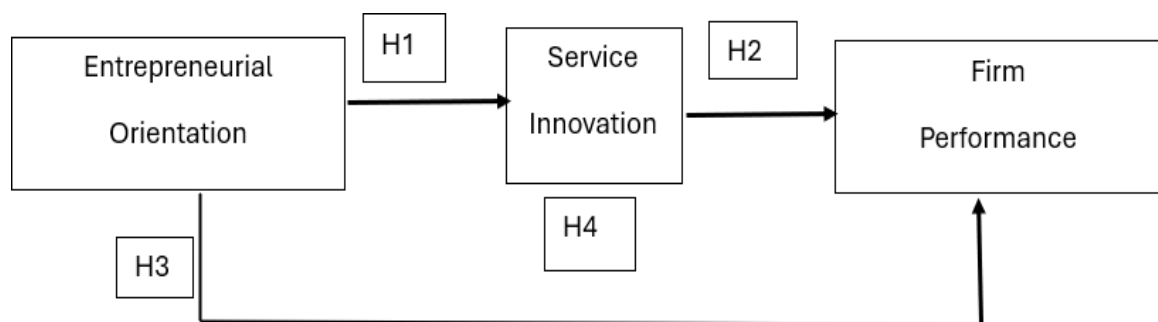


Figure 1: Research Framework

Based on the above theoretical relationships, the research framework is constructed to illustrate how entrepreneurial orientation influences firm performance both directly and indirectly through service innovation.

Entrepreneurial orientation serves as a strategic resource within the RBV. Service innovation functions as a dynamic capability that mediates the relationship between entrepreneurial orientation and firm performance. Firm performance reflects the ultimate organizational outcome (sales, profit, market share, competitiveness).

In sum, the RBV provides the theoretical base for identifying entrepreneurial orientation as a valuable intangible resource, while the Dynamic Capabilities framework explains how service innovation transforms this resource into superior performance. The hypotheses collectively form a coherent mechanism explaining how entrepreneurial orientation drives firm performance through the mediating role of service innovation in the dynamic hotel industry of Sarawak.

METHODOLOGY

This study employs a quantitative cross-sectional research design to examine the relationships among entrepreneurial orientation, service innovation, and firm Performance in star-rated hotels in Sarawak, Malaysia. This approach allows systematic data collection and statistical testing of hypothesized relationships, aligning with the study's explanatory objectives (Sekaran & Bougie, 2019).

Population and Sampling Method

The target population comprised one- to five-star hotels in Sarawak registered with the Ministry of Tourism, Arts and Culture (MOTAC) Malaysia. A purposive sampling technique was applied to ensure that only star-rated hotels (1-star to 5-star) across Sarawak with structured operations, defined service systems, and relevant innovation practices were included. This approach is appropriate for theory testing, where the focus is on examining relationships among constructs rather than producing population-wide estimates.

A total of 96 questionnaires were distributed to hotel managers, assistant managers, and senior executives across Kuching, Miri, Sibul, and Bintulu. Out of these, 76 questionnaires were returned (response rate $\approx 79\%$). After excluding three questionnaires with more than 25% missing data, 73 usable responses were retained (usable response rate $\approx 76\%$).

Sample adequacy was assessed using G*Power version 3.1 (Faul et al., 2007). For a model with one predictor, effect size $f^2 = 0.20$, $\alpha = 0.05$, and statistical power $(1-\beta) = 0.95$, the minimum required sample size was 67. Therefore, the final usable sample ($n = 73$) exceeded the minimum threshold, indicating sufficient statistical power for hypothesis testing.

Each participating hotel was represented by a key informant, typically an owner, general manager, or senior executive, who possessed comprehensive knowledge of the hotel's operations, innovative activities, and performance outcomes. This key-informant approach enhances data accuracy and reduces measurement bias for firm-level constructs.

Questionnaire Design

All constructs were measured using seven-point Likert scales and reflective item sets adapted from established sources. The instrument was reviewed for clarity and contextual suitability for the Sarawak hotel environment prior to the main data collection.

- i. Entrepreneurial Orientation (EO) - Entrepreneurial orientation was treated as a multidimensional construct comprising risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy (Lumpkin & Dess, 1996). A seven-point scale (1 = Strongly Disagree, 7 = Strongly Agree) was used. Items were adapted from Hughes and Morgan (2007), with 18 items capturing the five EO dimensions.
- ii. Service Innovation (SI) - Service innovation was measured using 13 items adapted from validated scales commonly used to capture service-related innovation in hospitality and service settings. Items reflected innovation in service concepts, service processes, and technology-enabled delivery, drawing on Agarwal and Selen (2009), Enz (2012), O'Cass and Sok (2013), Nieves et al. (2014), Calantone et al. (2002), Grisseman et al. (2013), Hogan et al. (2011), and Janssen et al. (2015). Responses were recorded using a seven-point scale (1 = Strongly Disagree, 7 = Strongly Agree).

Firm Performance (FP) - Firm performance was assessed using four subjective comparative indicators: sales growth, profit margin growth, market share growth, and overall competitive position, adapted from Grawe et al. (2009). Respondents rated their hotel's performance relative to key competitors using a seven-point scale (1 = Much Worse than Competitors, 7 = Much Better than Competitors).

Pretest

A full pilot study was not conducted due to the relatively small target population of star-rated hotels in Sarawak, as drawing too heavily from the same pool could reduce the feasibility of participation in the main study (Memon et al., 2017). Instead, a structured pretest was implemented to strengthen clarity, contextual appropriateness, and instrument validity.

The pretest consisted of two stages:

- i. Expert panel review - The draft questionnaire was reviewed by business faculty academics with more than five years of research experience. They assessed item clarity, questionnaire length, and relevance to the hotel context. Based on their feedback, minor wording refinements were made to improve readability and contextual fit.
- ii. Cognitive interviews with target respondents - Three hotel managers from different star categories completed the questionnaire using a debriefing approach (Hunt, Sparkman Jr., & Wilcox, 1982). Participants were asked to identify unclear wording, interpretive difficulties, and formatting issues. Further minor adjustments were made to improve comprehension and ensure that the instrument aligned with industry terminology.

Taken together, these steps supported face and content validity and confirmed that the measurement instrument was suitable for use in the Sarawak hotel context (Memon et al., 2017).

Data Analysis

Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS version 3.0, a method well-suited for small to moderate samples and predictive modelling (Hair et al., 2016). The analysis was conducted in two main stages:

- i. **Measurement Model Assessment:** This stage assessed internal consistency (Composite Reliability > 0.70), convergent validity (Average Variance Extracted > 0.50), and discriminant validity (HTMT < 0.85).
- ii. **Structural Model Assessment:** This stage tested the hypothesized relationships using path coefficients, t-values, and p-values derived from bootstrapping with 5,000 subsamples. The model's explanatory power and predictive relevance were further evaluated using R^2 , f^2 , and Q^2 statistics.

After confirming the adequacy of the structural model, the mediation effect of service innovation was examined using Preacher and Hayes's (2008) bootstrapping mediation analysis to assess the significance of the indirect effect.

DATA ANALYSIS

This section presents the respondents' profiles and screening results, followed by the assessment of the measurement and structural models using PLS-SEM in SmartPLS 3.0.

Respondent's Profile

The 73 hotels span Sarawak's major divisions and star classes, with three- to five-star properties dominating the room supply and innovation activity. Respondents were primarily general managers and department heads, with organizational tenure ranging from recent appointments to long tenures. This mix supports construct validity by ensuring that respondents have decision authority and visibility into innovation and performance outcomes.

Data Screening and Preparation

A total of 96 questionnaires were distributed, and 76 responses were received (response rate: 79%). After removing three questionnaires with over 25% missing values, 73 usable responses were retained (usable rate: 76%). Normality checks indicated that the data were non-normally distributed (skewness and kurtosis values exceeded ± 1.0), justifying the use of PLS-SEM, which does not require multivariate normality (Hair et al., 2016).

Common method variance (CMV) was addressed using full collinearity testing. All variance inflation factor (VIF) values were below the conservative threshold of 3.3, indicating that CMV was not a major concern (Kock, 2015).

Measurement Model Assessment

The reliability and validity of the constructs were examined using internal consistency, convergent validity, and discriminant validity.

The following table presents the indicators' loadings, CRs, and AVEs for each of the 3 reflective constructs. Reflective indicators met recommended thresholds. Most loadings exceeded .70; a small number in the .60–.69 range were retained when theoretically central and when AVE and CR remained acceptable. Composite reliability values surpassed .70; AVE values exceeded .50

Table 1: Respondents' Profile

Item	Number	Percentage
Job Position		
Top Management	38	52.0
Middle Management	35	48.0
Tenure		
5 years or less	32	43.8
6-10 years	18	24.7
11-20 years	9	12.3
21-30 years	13	17.8
Over 30 years	1	1.4
Age		
25 and below	3	4.1
26-35	15	20.5
36-45	19	26.0
46-55	23	31.5
56 and above	13	17.8
Qualification		
Primary Education	1	1.4
Secondary Education	12	16.4
Diploma	27	37.0
Bachelor's Degree/Professional	31	42.5
Postgraduate Degree	2	2.7
Hotel Rating		
1 star	11	15.0
2 stars	17	23.0
3 stars	27	37.0
4 stars	14	19.0
5 stars	4	6.0
Location		
Betong	1	1.0
Bintulu	10	14.0
Kapit	1	1.0
Kuching	30	41.0
Limbang	2	3.0
Miri	11	15.0
Mukah	2	3.0
Sarikei	2	3.0
Sibu	12	17.0
Sri Aman	2	3.0

Table 2: Reflective Measurement Model: Factor Loading, CR, and AVE

Constructs	Items	Scale	Loading	CR	AVE	Convergent Validity (AVE > 0.5)
Entrepreneurial Orientation						
Risk-taking	RT25	Reflective	0.737	0.843	0.642	YES
	RT26		0.852			
	RT27		0.810			
Innovativeness	Inn28	Reflective	0.821	0.910	0.772	YES
	Inn29		0.894			
	Inn30		0.918			
Proactiveness	Pro31	Reflective	0.895	0.919	0.790	YES
	Pro32		0.933			
	Pro33		0.837			
Competitive Aggressiveness	Com34	Reflective	0.811	0.884	0.717	YES
	Com35		0.845			
	Com36		0.883			
Autonomy	Aut37	Reflective	0.793	0.906	0.618	YES
	Aut38		0.711			
	Aut39		0.788			
	Aut40		0.870			
	Aut41		0.834			
	Aut42		0.704			
Service Innovation	SIInn43	Reflective	0.748	0.940	0.549	YES
	SIInn44		0.757			
	SIInn45		0.764			
	SIInn46		0.641			
	SIInn47		0.692			
	SIInn48		0.697			

AVE = Average Variance Extracted and CR = Composite Reliability

Table 3: Discriminant Validity using Fornell and Lacker (1981)

	AUT	COM	INN	PRO	Perf	RT	SIInn
AUT	0.786						
COM	0.266	0.847					
INN	0.396	0.617	0.879				
PRO	0.210	0.752	0.747	0.889			
Perf	0.460	0.269	0.398	0.300	0.919		
RT	0.432	0.283	0.529	0.332	0.344	0.801	

Referring to the following table, the square roots of the AVEs, as shown by the bolded values (diagonals), were greater than the squares of the correlations (off-diagonal) between all the constructs of the model (Fornell & Larcker, 1981), indicating that all constructs exhibited sufficient or satisfactory discriminant validity. No problematic lateral multicollinearity was observed among predictors using inner VIF diagnostics (Kock & Lynn, 2012). The standardized root mean square residual (SRMR) of the composite

factor model is used to evaluate its fit in this study. The SRMR of 0.077 indicates an acceptable fit for the structural model (Hair et al., 2016).

These results confirm that the measurement model has adequate reliability and validity to proceed with the structural model analysis.

Structural Model Assessment

The structural model was evaluated using path coefficients, t-values, p-values, R^2 values, effect sizes (f^2), and predictive relevance (Q^2). The following table reveals the assessment of the path coefficient. Based on the assessment results, the three relationships had t values ≥ 1.645 , indicating significance at the 0.05 level.

Table 4: Path-Coefficient Assessment (N=73)

Relationship	Std Beta	Std Error	t-value	p-value	Decision
H1: Entrepreneurial orientation -> Service innovation	0.545	0.104	5.253**	0.000	Supported
H2: Service Innovation -> Firm performance	0.440	0.101	4.359**	0.000	Supported
H3: : Entrepreneurial orientation -> Firm performance	0.240	0.074	3.226**	0.001	Supported

Note: * $p < 0.05$, ** $p < 0.01$

The following table illustrates the R^2 value for two endogenous constructs in this study: service innovation capability and firm performance. The coefficient of determination (R^2) for service innovation capability is 0.754. This indicates that the exogenous constructs, namely entrepreneurial orientation, explains 75.4% of the variance in service innovation. Similarly, the R^2 for firm performance is 0.193, indicating a positive relationship and suggesting that service innovation accounts for 19.3% of the variance in firm performance. The R^2 score of service innovation of 0.754 is above the 0.26 value as suggested by Cohen (1988) and is considered substantial in the explanatory power. On the other hand, firm performance has moderate explanatory power, with an R^2 of 0.193, corresponding to approximately 0.13 (Cohen, 1988).

Table 5: Coefficient of Determination (R^2)

Constructs	Coefficient of Determination R^2	Explanatory Power
Firm Performance	0.193	Moderate
Service Innovation Capability	0.754	Substantial

Note: R^2 score interpretation (0.26 substantial; 0.13 moderate; 0.02 weak) (Cohen, 1988)

The f^2 statistic in this study is also used to evaluate the model's predictive accuracy. The purpose of this method is to examine a change in the R^2 value by evaluating whether the omitted exogenous construct will have a substantive impact on the endogenous construct.

Following Cohen's (1988) recommendation, the values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively. The result of the effect size assessment is illustrated in the following table.

Table 6: Effect Size f^2

Constructs	Service Innovation	Firm Performance	Effect Size
Entrepreneurial Orientation	0.381		Large
Service Innovation Capability		0.240	Medium

Note: f^2 score interpretation (0.35 large effect size, 0.15 medium effect size, 0.02 small effect size, <0.02 trivial effect size) (Cohen, 1988)

The results show that entrepreneurial orientation (0.381) has a large effect on R^2 for service innovation, and service innovation (0.240) has a medium effect on R^2 for firm performance in this research.

In addition to evaluating the magnitude of R^2 , the predictive relevance of the model is assessed using the blindfolding procedure. As suggested by Hair et al. (2016), the blindfolding procedure should be applied only to endogenous constructs with reflective measurement models. This procedure compares the original and predicted values to assess the model's predictive accuracy.

Hair et al. (2016) recommended cross-validated redundancy as a measure of Q^2 because this technique incorporates key elements of path and structural models to predict the eliminated data points. If the Q^2 value is greater than 0, the model is considered to have predictive relevance for a specific endogenous construct (Hair et al., 2016; Fornell & Cha, 1994). The results of blindfolding, shown in Table 7, indicated that the two endogenous latent constructs, Q^2 values for service innovation ($Q^2 = 0.376$) and firm performance ($Q^2 = 0.148$), are greater than 0, indicating a model with sufficient predictive relevance. Therefore, the model in this study is assumed to be predictive relevant, as the endogenous latent construct Q^2 value is greater than 0.

Table 7: Predictive Relevance Q^2

Constructs	Service Innovation
Entrepreneurial Orientation	0.381
Service Innovation Capability	

Note: $Q^2 > 0$

Mediation and Predictive Relevance

The mediation effect was tested using bootstrapped indirect effects (Preacher & Hayes, 2008), and the results are presented in Table 8. The bootstrapping analysis revealed an indirect effect for H4, with $\beta = 0.240$, significant ($t = 3.072$).

Table 8: Hypotheses Testing on Mediation

Hypotheses	Mediation Relationship	Std Beta	Std Error	t-value	Confidence Interval Bias Corrected		
					LB	UB	Decision
H4	EO -> Ser Inn -> Perf	0.240	0.078	3.072**	0.122	0.382	Supported

Note: * $p < 0.05$, ** $p < 0.01$

Overall Hypotheses Result

The hypothesized direct-effect relationships were evaluated using bootstrapping, whereas the mediation tests were evaluated using Preacher and Hayes (2008). The following Table 9 summarizes the results of the hypotheses assessment.

DISCUSSION

This section interprets the study's key findings and explains their implications for the theorized mechanism linking entrepreneurial orientation, service innovation capability, and firm performance in Sarawak's star-rated hotel sector. Overall, the results support all hypothesized relationships, indicating that entrepreneurial orientation enhances service innovation capability ($\beta = 0.545$) and that service innovation capability, in turn, improves firm performance ($\beta = 0.440$). Entrepreneurial orientation also shows a smaller but significant direct effect on firm performance ($\beta = 0.240$), while the indirect effect via service innovation capability is significant ($\beta = 0.240$), suggesting partial mediation.

The strong relationship between entrepreneurial orientation and service innovation capability is consistent with the RBV logic, which posits that entrepreneurial orientation is an intangible strategic resource that shapes how firms search for opportunities, experiment, and commit resources under uncertainty (Barney, 1991; Covin & Wales, 2019). In hotels, where service delivery is simultaneous with consumption, an entrepreneurial posture is especially consequential because it influences frontline empowerment, process redesign, and the adoption of new service concepts and technologies that underpin service innovation (Den Hertog et al., 2010).

Service innovation capability's positive association with firm performance indicates that hotels that build capabilities for systematic service change, such as improving service concepts, delivery processes, technology use, and employee roles, are better able to translate innovation efforts into performance gains. This finding aligns with prior hospitality research indicating that service and process innovations can enhance customer satisfaction and business outcomes (Grissemann et al., 2013; Horng et al., 2016).

The mediation results provide a more nuanced explanation of EO's performance implications. The significance of the indirect effect, alongside a remaining direct relationship between firm orientation and firm performance effect, implies that service innovation capability is an important (but not exclusive) pathway through which entrepreneurial orientation creates value. Practically, this means that an entrepreneurial posture alone does not guarantee performance unless it is translated into repeatable innovation routines; at the same time, entrepreneurial orientation may influence firm performance through other mechanisms not modelled here (e.g., market sensing, learning, or customer relationship practices), which future research could examine.

Attention is also warranted for the comparatively modest explanatory power of firm performance ($R^2 = 0.193$). While the model captures a meaningful service innovation capability-to-performance pathway (with a medium effect size, $f^2 = 0.240$), hotel performance is also influenced by additional contextual drivers, including location advantages, service quality baselines, brand strength, demand seasonality, and competitive intensity. The post-pandemic recovery environment in Sarawak may further amplify performance variability across properties. These considerations may explain why EO and SIC, although significant, do not account for a larger share of FP variance in this sample.

Taken together, the findings reinforce the central claim that the performance benefits of EO in service settings are more likely to materialize when hotels develop explicit capabilities to design, implement, and scale service innovations rather than relying on ad hoc initiatives.

Table 9: Summary of Hypotheses Testing

Hypotheses	Description	Results
H1	Entrepreneurial orientation is positively related to service innovation	Supported
H2	Service innovation is positively related to firm performance	Supported
H3	Entrepreneurial orientation is positively related to firm performance	Supported
H4	Service Innovation mediates the relationship between entrepreneurial orientation and firm performance	Supported

CONCLUSION

This study examined how entrepreneurial orientation influences firm performance, both directly and indirectly through service innovation, in star-rated hotels in Sarawak, Malaysia. Using Partial Least Squares Structural Equation Modelling (PLS-SEM), the findings show that entrepreneurial orientation has a significant positive effect on both service and firm performance, and that service innovation has a significant positive effect on firm performance. The mediation analysis indicates that service innovation partially mediates the relationship between entrepreneurial orientation and firm performance. Hotels with higher levels of entrepreneurial orientation tend to perform better not only because they are opportunity seeking and proactive, but also because these tendencies are converted into systematic service innovations that redesign processes, use enabling technologies and enrich guest experiences (Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005; Den Hertog et al., 2010; Liu & Mattila, 2025).

Theoretical Contributions

Theoretically, this study advances a mechanism-centred view of the relationship between entrepreneurial orientation and firm performance in a service-dominant, emerging-market context. The findings support an orientation–capability–performance sequence in which entrepreneurial orientation functions as a valuable, rare, inimitable, and non-substitutable (VRIN) strategic resource under the Resource-Based View, service innovation operates as a dynamic capability under the Dynamic Capabilities perspective, and firm performance is the outcome (Barney, 1991; Wernerfelt, 1984; Teece et al., 1997; Den Hertog et al., 2010). Rather than treating innovation as a broad, undifferentiated construct, this study treats service innovation as a specific mediating capability and tests its role in explaining how entrepreneurial orientation improves firm performance. In doing so, the study extends prior entrepreneurial orientation research that has often relied on generic innovation measures or omitted explicit mediators, particularly in hospitality and tourism settings (Keskin, 2006; Kocak et al., 2017; Qasim et al., 2025; Kaur & Gupta, 2024). The results are consistent with empirical evidence from hotel and tourism studies showing that strategic orientations enhance performance largely through their influence on innovation-related capabilities, and they reinforce the central role of service innovation in translating entrepreneurial posture into tangible performance outcomes (Tajeddini, 2010; Tajeddini & Trueman, 2012; Hilman & Kaliappen, 2015; Wu et al., 2023; Tsou et al., 2025).

Practical Implications for Managers and Policymakers

For hotel managers, the results suggest that cultivating an entrepreneurial posture is necessary but not sufficient. Entrepreneurial orientation must be institutionalized through structures and routines that

consistently generate and implement service innovations (Keskin, 2006; Kocak et al., 2017; Kaur & Gupta, 2024). Practically, this implies several actions.

First, managers should establish clear governance arrangements for innovation. This includes defining responsible roles, decision rights, and performance indicators for service innovation initiatives, so that ideas are systematically evaluated, piloted, and scaled (Nagy, 2012; Liu & Mattila, 2025). Second, hotels can run regular cycles in which frontline staff identify service pain points, propose and prototype new service elements, and review outcomes. Such cycles encourage learning, experimentation, and employee-driven service innovation (Wu et al., 2023; Barkat et al., 2024). Third, investment in technologies such as property management systems, mobile applications, and data analytics should be guided by a service logic rather than by technology for its own sake (Liu & Mattila, 2025). Finally, managers should embed post-implementation reviews to capture and diffuse learning from both successful and unsuccessful innovations across departments (Nieves & Quintana, 2014; Grisseemann et al., 2013; Rajapathirana & Hui, 2018).

At the policy level, these findings align with Sarawak's Post COVID-19 Development Strategy (PCDS) 2030, which positions tourism growth around higher value creation and innovation-led development. Tourism agencies and industry associations can support this direction by building practical capacity in service innovation and digital service design, creating structured channels for hotels to share knowledge and workable solutions, and offering targeted incentives or grants for service-innovation initiatives that also advance sustainability and community-based tourism priorities (Tsou et al., 2025; Yuan et al., 2023). Strengthening these enabling supports would help star-rated hotels develop stronger service innovation capability and, ultimately, reinforce Sarawak's overall destination competitiveness.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, the cross-sectional survey design and reliance on managers' perceptual assessments of performance constrain causal inference. The results capture associations at a single point in time rather than dynamic effects (Baron & Kenny, 1986; Memon et al., 2017). Second, the data were obtained from a single key informant in each hotel, which may introduce single-informant and common-method bias, even though the respondents were senior executives familiar with their hotels' innovation activities and performance (Hunt et al., 1982; Podsakoff et al., 2003). Third, the sampling frame was limited to star-rated hotels in Sarawak listed in the MOTAC directory, which restricts generalizability to other types of accommodation providers and to hotels outside the region.

Future research could address these limitations in several ways. Longitudinal or experimental designs would allow scholars to track entrepreneurial orientation investments, service innovation implementations, and performance outcomes over time and provide stronger evidence of causality in the relationships among these constructs (Preacher & Hayes, 2008). Studies that incorporate multiple respondents per hotel, such as top management, middle management, and frontline employees, together with objective performance indicators, could reduce common method variance and provide a richer view of innovation processes (Hunt et al., 1982; Memon et al., 2017). Comparative research across different service sectors, regions, and cultural contexts would also clarify whether the mechanisms that involve entrepreneurial orientation, service innovation, and firm performance operate similarly in other emerging economies and tourism destinations (Tajeddini, 2010; Tajeddini & Trueman, 2012; Kaur & Gupta, 2024). Finally, future work could incorporate moderators such as environmental turbulence, digital maturity,

hotel size, and ownership structure to identify boundary conditions under which entrepreneurial orientation and service innovation strongly enhance performance (Wiklund & Shepherd, 2005; Hilman & Kaliappen, 2015).

In summary, the findings indicate that entrepreneurial orientation is a necessary but not sufficient condition for superior performance in star-rated hotels. Service innovation serves as the critical mechanism for translating entrepreneurial intent into guest-perceived value and measurable competitive advantage (Den Hertog et al., 2010; Liu & Mattila, 2025). For hotels in Sarawak and similar emerging-market destinations, sustainable performance depends on how effectively entrepreneurial energy is translated into disciplined, repeatable, and learning-oriented service-innovation practices.

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