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From Intellectual Capital to Firm Performance: The Mediating Role of Agile Strategy Capability in Digital Tourism Innovation

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Abstract

Background: Research on intellectual capital and firm performance shows mixed results, especially in emerging markets. Most studies focus on direct effects and provide limited understanding of how intellectual resources are strategically transformed into performance outcomes. The mediating roles of agile strategy capability, digital platform capability, and service innovation have rarely been examined within an integrated framework. This study addresses this gap in tourism firms in Eastern Indonesia, a rapidly digitalizing yet structurally constrained emerging market.

Objective: This study investigates how intellectual capital improves firm performance through agile strategy capability, with digital platform capability and service innovation as mediating mechanisms.

Methods: Drawing on Dynamic Capability Theory and Resource Advantage Theory, this research applies a cross-sectional quantitative design. Data were collected from 280 C-level executives of resorts and hotels in Eastern Indonesia and analyzed using PLS-SEM.

Results: Intellectual capital significantly strengthens agile strategy capability, which subsequently enhances service innovation and firm performance. Although intellectual capital also improves digital platform capability, digital platform capability does not significantly influence firm performance. Mediation analysis confirms that agile strategy capability plays a key mediating role, mainly through service innovation, while the digital platform pathway is not significant.

Conclusion: Intellectual capital drives firm performance primarily through agile strategy capability and service innovation rather than digital platform capability alone. These findings highlight the importance of strategic agility and service innovation over technology investment in emerging tourism markets.

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INTRODUCTION

The Indonesian tourism industry confronts intensifying competitive pressures in the digitalization era, with Eastern Indonesia regions possessing substantial tourism potential yet experiencing persistent underperformance relative to western counterparts (Ada et al., 2022; Yeo et al., 2022). Tourism constitutes one of Indonesia's strategic economic sectors, contributing significantly to national GDP, foreign exchange earnings, and employment generation, while serving as a catalyst for regional development and poverty reduction. However, pronounced regional disparities persist, with infrastructure concentration, investment flows, and digital readiness heavily skewed toward western Indonesia. This imbalance limits the capacity of Eastern regions to fully capture tourism-driven growth, thereby raising important development implications concerning inclusive growth, competitiveness, and sustainable regional transformation.

The paradox reveals a critical capability gap wherein resource endowment fails to translate into sustainable competitive advantage. The phenomenon becomes particularly salient as digital transformation fundamentally reshapes global tourism competitive dynamics, where traditional resource-based advantages increasingly require complementary dynamic capabilities to generate sustainable performance outcomes (Khaki & Khan, 2024). Understanding the mechanisms through which tourism enterprises convert strategic resources into superior performance therefore constitutes both a theoretical necessity and a practical development priority in emerging and structurally constrained contexts.

Intellectual capital has been extensively recognized as a crucial strategic resource, with substantial empirical evidence supporting its performance implications across diverse industry settings (Le et al., 2022). Asiaei *et al*. (2022) demonstrated that human, structural, and relational capital collectively shape organizational performance in service-intensive industries. Kianto & Cabrilo (2022) further established that knowledge-based human resource practices leveraging intellectual capital enhance innovation capability and business performance, while Pichlak (2021) provided evidence from the banking sector showing that intellectual capital dimensions exert significant positive effects on financial performance. These findings align with Resource Advantage Theory, which positions valuable and rare knowledge-based resources as foundations of competitive advantage.

However, extant literature reveals inconsistencies that challenge the assumed universality of the intellectual capital–performance relationship. Leitner (2022) reported non-significant and even negative effects under high environmental turbulence, suggesting that intellectual capital alone may be insufficient in dynamic contexts. Sayed *et al*. (2025) acknowledged substantial unexplained variance in performance models, indicating the presence of unexamined mediating mechanisms. Kull *et al*. (2016) argued that resource-based advantages are temporary without dynamic capabilities that enable resource reconfiguration in response to environmental change. These arguments, grounded in Dynamic Capability Theory, imply that intellectual capital requires activating mechanisms—such as agile strategic processes—to be effectively translated into performance outcomes, particularly in experience-intensive and rapidly changing tourism markets.

These tensions highlight three critical gaps. First, limited empirical attention has been given to agile strategy capability as a mediating mechanism linking intellectual capital to firm performance in tourism contexts requiring rapid adaptation. Second, little is known about how these relationships operate in Eastern Indonesia, where geographical dispersion, infrastructure asymmetry, and institutional variability may alter resource–capability–performance dynamics. Third, the complementary roles of digital platform capability and service innovation in channeling agile strategy capability toward performance remain insufficiently understood. By integrating Resource Advantage Theory and Dynamic Capability Theory, this study examines how intellectual capital is transformed into firm performance through agile strategy capability and evaluates the relative roles of digital platform capability and service innovation within the competitive tourism industry of Eastern Indonesia.

LITERATURE REVIEW

This research is grounded in the integration of Dynamic Capability Theory (Teece, 2006) and Resource Advantage Theory of Competition (Agnihotri & Gabler, 2024). Dynamic Capability Theory asserts that in hypercompetitive environments, organizational capability to sense opportunities, seize resources, and reconfigure asset bases becomes the primary determinant of competitive advantage. Meanwhile, Resource Advantage Theory emphasizes that competitive advantage originates from comparative advantage in heterogeneous and imperfectly mobile resources. These integration of these two theories provides a robust lens for understanding how IC as a strategic resource can be transformed into FP through ASC as dynamic capability, with DPC and SI as intermediate outcomes reflecting resource reconfiguration. This theoretical integration addresses the fundamental question of how static resources (IC) become dynamic sources of competitive advantage through capability-building mechanisms (ASC) and their manifestations in technological (DPC) and service innovations (SI).

Intellectual capital, comprising human capital (competencies, knowledge), structural capital (systems, processes), and relational capital (stakeholder networks), constitutes a strategic resource enabling dynamic capabilities in turbulent environments. Agile strategy capability organizational capacity for rapid, flexible strategic formulation and implementation emerges through intellectual capital via three mechanisms: knowledge utilization enabling swift environmental sensing and response (Al-Omoush et al., 2022; Pramono et al., 2025; Sam et al., 2025), intellectual agility facilitating innovative structural adjustments (Chauhan & Chauhan, 2019), and organizational learning supporting iterative strategy refinement (Lee, 2019). Empirical evidence confirms intellectual capital significantly influences organizational agility (Effendi et al., 2024; Somwethee et al., 2023), suggesting knowledge assets provide cognitive infrastructure for strategic responsiveness.

H1: Intellectual Capital positively influences Agile Strategy Capability

Agile strategy capability, operationalizing Dynamic Capability Theory's sensing, seizing, and reconfiguring processes (Teece & D.J., 2007), functions simultaneously as enabler of intermediate capabilities and direct performance driver. This dual orchestration role positions strategic agility beyond reactive adaptation toward proactive capability anticipating environmental changes, reconfiguring resources rapidly, and deploying innovative solutions (Annarelli et al., 2021). While organizations possess technologies or ideas, competitive advantage derives from agile orchestration transforming potential resources into actualized competitive actions.

Empirical evidence demonstrates agile strategy capability influences outcomes through distinct mechanisms. For digital platform capability (H2), strategic agility enables platform exploitation through resource reallocation flexibility (Gawer, 2021), digital trend sensing (Ciampi et al., 2022), and transformation-business alignment (Abdurrahman et al., 2024), with (Ravichandran, 2018) confirming platform effectiveness depends on complementary agility. For service innovation (H3), agility facilitates opportunity sensing (Brunner et al., 2024), rapid prototyping (Areerakulkan & Sumrit, 2025), and resource reconfiguration supporting service orchestration (Panichakarn et al., 2024). For firm performance (H4), strategic agility enhances outcomes through cost-effective responsiveness (Oliveira-Dias et al., 2023), rapid adaptation, and market sensing (Dias & Lages, 2021; Mu'Min et al., 2025), with consistent evidence confirming positive relationships.

H2: Agile Strategy Capability positively influences Digital Platform Capability
H3: Agile Strategy Capability positively influences Service Innovation
H4: Agile Strategy Capability positively influences Firm Performance

Digital platform capability organizational capacity to develop, operate, and optimize digital platforms Gawer, (2021) enhances firm performance through three mechanisms: operational efficiency via process automation reducing costs (Shen et al., 2022), market reach expansion through online channels increasing revenue streams (Wyrebkowski & Gorzen, 2024), and customer experience improvement via personalization enhancing satisfaction and loyalty. While empirical evidence reveals complexity with Ravichandran, (2018) demonstrating full mediation through organizational agility and Heredia-Carroza et al., (2024) showing technological capability mediation—theoretical foundations support direct effects. Contextual variations indicate performance impacts operate through network capability in entrepreneurial contexts (Cenamor et al., 2019) and resource allocation in manufacturing (Compagnucci et al., 2025).

H5: Digital Platform Capability positively influences Firm Performance

Service innovation developing novel service offerings or improving existing services—enhances firm performance through three mechanisms: operational efficiency via process innovation reducing costs and improving quality (Samar-Tarazona et al., 2021), differentiation advantage creating superior customer value and market access, and customer satisfaction through meeting evolving needs. Both incremental and radical service innovations improve performance, with radical innovations generating more substantial effects (Rajapathirana & Hui, 2018). In service-dominant industries like hospitality, service innovation constitutes critical determinant of business success (Chuang, 2020). Empirical evidence consistently demonstrates

positive relationships across financial and non-financial performance indicators.

H6: Service Innovation positively influences Firm Performance

Intellectual capital constitutes valuable strategic resource, yet its transformation into performance requires dynamic capability orchestration. Agile strategy capability mediates intellectual capital-performance relationships (H7) through sensing, seizing, and reconfiguring processes (Teece & D.J., 2007), with empirical evidence demonstrating dynamic capabilities mediate intellectual capital impacts on performance (Benitez et al., 2022). This mediation reveals that intellectual capital alone proves insufficient—organizations possessing high intellectual capital without strategic agility fail achieving superior performance as knowledge remains potential value unrealized (Thomä & Zimmermann, 2020). Beyond simple mediation, intellectual capital-performance transformation operates through dual serial pathways: technological transformation via agile strategy capability and digital platform capability (H8), and service transformation via agile strategy capability and service innovation (H9), representing complementary mechanisms converting knowledge assets into competitive outcomes.

The technological pathway (H8) demonstrates intellectual capital dimensions enhance agile strategy capability, facilitating digital platform capability development that improves performance, with platforms constituting higher-order dynamic capabilities requiring organizational capability embedding for competitive advantage (Al-Musawi, 2020). The service pathway (H9) reveals intellectual capital enhances agile strategy capability, fostering service innovation that improves performance through knowledge exploitation mechanisms, with empirical evidence confirming innovativeness partially mediates intellectual capital-performance relationships (Barrena-Martínez et al., 2020; McDowell et al., 2018). Human and relational capital improve innovation through organizational learning capability mediation. These serial mediations emphasize staged transformation processes requiring both knowledge foundations and strategic orchestration activating technological and service innovations generating sustainable competitive advantages.

H7: Agile Strategy Capability mediates the relationship between Intellectual Capital and Firm Performance

H8: Agile Strategy Capability and Digital Platform Capability serially mediate the relationship between Intellectual Capital and Firm Performance

H9: Agile Strategy Capability and Service Innovation serially mediate the relationship between Intellectual Capital and Firm Performance

This model operationalizes Dynamic Capability Theory Teece & D.J., (2007) and Resource Advantage Theory Dickson, (1996) integration, examining staged transformation from intellectual capital into firm performance through agile strategy capability orchestration. The architecture configures three complementary mediation pathways: simple mediation testing basic activation mechanisms, technological pathway serial mediation depicting digital transformation processes, and service pathway serial mediation representing innovation transformation processes. Positioned within Eastern Indonesia tourism contexts characterized by resource endowment-capability constraint paradox, the model addresses theoretical gaps regarding transformation mechanisms explaining why high intellectual capital organizations fail achieving superior performance without dynamic capability orchestration (Munoz-Penas et al., 2024), thereby reconciling resource-based and capability-based competitive advantage perspectives through empirical examination of dual intermediate pathways.

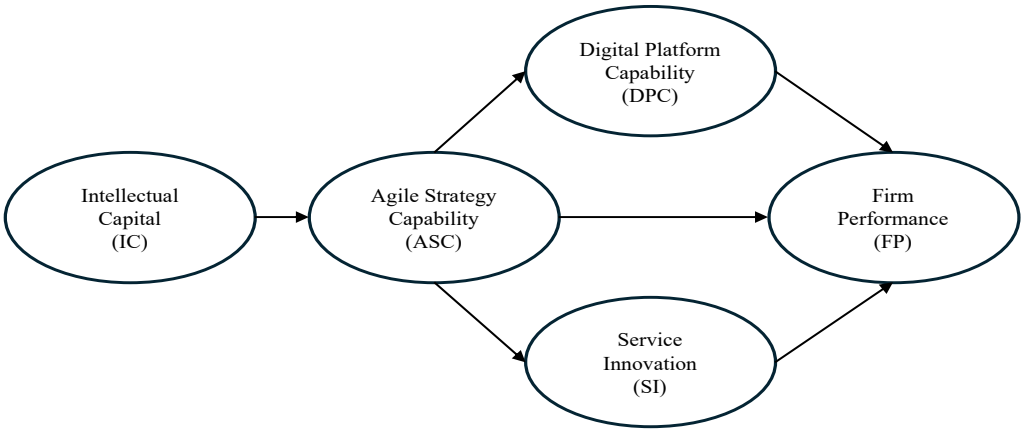

Figure 1. Conceptual Framework

METHOD

The study adopts a quantitative research design to test the proposed hypotheses and examine the structural relationships among intellectual capital, agile strategy capability, digital platform capability, service innovation, and firm performance. A quantitative approach is appropriate because the research seeks to validate theory-driven relationships, estimate mediation effects, and generalize findings across organizational units within a defined population. The design enables systematic measurement of latent constructs and statistical testing of complex interdependencies consistent with the study's explanatory objectives.

The research population consists of resorts and hotels located in Eastern Indonesia, including Bali, East Nusa Tenggara, North Sulawesi, West Papua, and Maluku. These regions were selected because they combine high tourism potential with digital adoption challenges and increasing competitive intensity. The unit of analysis is the firm, while the unit of observation comprises C-level executives or senior managers who possess comprehensive knowledge of organizational strategy, digital initiatives, innovation practices, and performance outcomes. Their positions allow them to provide informed assessments of firm-level capabilities. A total of 280 responses were obtained, meeting statistical power requirements for structural equation modeling with a medium effect size (f^2 = 0.15), power of 0.80, and α = 0.05, and exceeding the minimum sample criteria for PLS-SEM (Hair & Sarstedt, 2019). Purposive sampling was applied using four criteria: hotels with at least a three-star rating, a minimum of three years of operation, managers with at least two years of tenure, and active digital presence (e.g., website or OTA listing), ensuring relevance to digital transformation and innovation practices.

Data were collected using structured questionnaires with seven-point Likert scales to enhance response variability and measurement sensitivity. Measurement items were adapted from established and validated scales: intellectual capital, agile strategy capability (Kosonen, 2019), digital platform capability (Jacobides et al., 2018; Vial, 2021), service innovation, and firm performance (Cabrilo & Kianto, 2023). All instruments underwent translation and back-translation procedures (Brislin, 1970) to ensure semantic equivalence between English and Bahasa Indonesia versions. A pilot test involving 30 tourism managers confirmed clarity, relevance, and contextual appropriateness before full-scale distribution.

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. This technique was selected due to its suitability for complex models with multiple mediating relationships, its robustness to non-normal data distributions, and its predictive orientation (Hair & Sarstedt, 2019). The analysis followed two main stages. First, the measurement model was assessed through convergent validity (factor loadings > 0.70; AVE > 0.50), discriminant validity (Fornell–Larcker criterion and HTMT < 0.85), and reliability (Cronbach's alpha and composite reliability > 0.70). Second, the structural model was evaluated using bootstrapping with 5,000 resamples to test path significance, alongside assessment of R^2 values, effect sizes (f^2), and predictive relevance (Q^2). Mediation effects were examined through bias-corrected bootstrapping of indirect effects to determine the presence and type of mediation.

To mitigate common method bias, both procedural and statistical remedies were applied (Podsakoff et al., 2016). Procedural measures included assuring respondent anonymity, randomizing item order, and separating predictor and criterion constructs psychologically within the questionnaire. Statistical assessment employed Harman's single-factor test and full collinearity VIF analysis, with all values below recommended thresholds, indicating that common method bias was unlikely to threaten the results (Kock, 2015).

This study adhered to ethical research standards. Participation was voluntary, respondents were informed about the purpose of the research, confidentiality was guaranteed, and no personally identifiable information was collected. Data were used solely for academic purposes and analyzed in aggregate form to ensure anonymity and protect organizational privacy.

RESULTS AND DISCUSSION

Results

The analysis is based on cross-sectional survey data collected from 280 hotels and resorts in Eastern Indonesia. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess both the measurement model and the structural relationships among constructs. The results are presented in three stages: first, evaluation of the measurement model to establish validity and reliability; second, assessment of the structural model to test the direct hypotheses; and third, examination of mediation effects.

The measurement model demonstrates robust psychometric properties satisfying stringent validity and reliability criteria. All constructs exhibit satisfactory convergent validity, with Average Variance Extracted exceeding recommended thresholds and factor loadings above acceptable levels, confirming that indicators adequately represent their respective latent variables. Reliability assessment shows Cronbach's alpha and composite reliability values above 0.70, indicating internal consistency. Discriminant validity is also established using the Fornell–Larcker criterion and HTMT ratios within acceptable limits, confirming that each construct is empirically distinct.

All constructs exhibit satisfactory convergent validity with Average Variance Extracted exceeding 0.50 threshold: intellectual capital (AVE=0.742), agile strategy capability (AVE=0.576), digital platform capability (AVE=0.676), service innovation (AVE=0.774), and firm performance (AVE=0.744), while outer loadings uniformly exceed 0.70 benchmark, ranging from 0.723 to 0.914 (Hair et al., 2019). Internal consistency reliability proves excellent, with Cronbach's alpha values ranging from 0.756 to 0.914 and Composite Reliability from 0.844 to 0.936, substantially surpassing 0.70 threshold (JC & IH, 1994; Nunnally, 1978). Descriptive statistics reveal moderately high mean scores (5.637-6.293) with adequate standard deviations (0.884-1.444) demonstrating sufficient response variance, confirming measurement instruments possess adequate validity and reliability for structural hypothesis testing.

Table 1. Measurement Model Assessment: Descriptive Statistics, Reliability, and Validity

Construct /Indicator	Mean	Standard deviation	Outer loadings	CA	CR	AVE
Agile Strategy Capability				0.756	0.844	0.576
ASC1	5.637	1.196	0.764			
ASC2	5.857	1.187	0.773			
ASC3	5.840	1.030	0.723			
ASC4	5.957	1.062	0.775			
Digital Platform Capability				0.839	0.893	0.676
DPC1	6.117	1.047	0.837			
DPC2	6.090	0.960	0.855			
DPC3	6.113	1.004	0.865			
DPC4	6.293	0.884	0.725			
Firm Performance				0.914	0.936	0.744
FP1	5.803	1.395	0.914			
FP2	5.837	1.170	0.852			
FP3	5.667	1.212	0.826			

Construct /Indicator	Mean	Standard deviation	Outer loadings	CA	CR	AVE
FP4	5.663	1.418	0.863			
FP5	5.880	1.444	0.857			
	Intellectual Capital			0.885	0.920	0.742
IC1	5.860	1.123	0.892			
IC2	6.007	1.089	0.877			
IC3	5.973	1.122	0.858			
IC4	5.967	1.107	0.817			
	Service Innovation					
SI1	5.750	1.263	0.878			
SI2	5.807	1.081	0.886			
SI3	5.873	1.070	0.879			
SI4	5.793	1.290	0.876	0.903	0.932	0.774

Discriminant validity assessment through Fornell-Larcker criterion reveals adequate construct distinctiveness, with intellectual capital demonstrating moderate associations with agile strategy capability (r=0.550) and digital platform capability (r=0.503), while agile strategy capability exhibits strong correlation with firm performance (r=0.773) suggesting substantial yet theoretically distinct constructs. Correlation patterns align with theoretical expectations wherein proximal constructs in causal chains exhibit stronger associations than distal constructs. Heterotrait-Monotrait ratio examination below 0.85 threshold confirms construct distinctiveness (Henseler et al., 2015), demonstrating constructs maintain conceptual independence while exhibiting theoretically meaningful relationships consistent with proposed research model.

Table 2. Discriminant Validity: Fornell-Larcker Criterion

	Agile Strategy Capability	Digital Platform Capability	Firm Performance	Intellectual Capital	Service Innovation
Agile Strategy Capability					
Digital Platform Capability	0.390				
Firm Performance	0.773	0.255			
Intellectual Capital	0.550	0.503	0.391		
Service Innovation	0.322	0.399	0.369	0.582	

Multicollinearity assessment through Variance Inflation Factor (VIF) analysis confirms absence of problematic collinearity among predictor constructs (Table 3). All VIF values range from 1.000 to 1.209, substantially below conservative threshold of 3.3 Kock, (2015) and well below liberal threshold of 5.0 (Hair et al., 2019), indicating predictor constructs maintain statistical independence without inflating standard errors or destabilizing parameter estimates. Intellectual capital predicting agile strategy capability exhibits VIF of 1.000, indicating no collinearity concerns. Agile strategy capability predicting digital platform capability (VIF=1.000), service innovation (VIF=1.000), and firm performance (VIF=1.142) demonstrates minimal multicollinearity. Digital platform capability (VIF=1.209) and service innovation (VIF=1.178) predicting firm performance similarly exhibit negligible collinearity. These low VIF values confirm that estimated path coefficients represent unique predictive contributions of each construct, uncontaminated by excessive shared variance with other predictors, thereby validating structural model parameter estimates and enabling reliable hypothesis testing (Hair & Sarstedt, 2019).

Table 3. Multicollinearity Assessment: Variance Inflation Factors (VIF)

	Agile Strategy Capability	Digital Platform Capability	Firm Performance	Intellectual Capital	Service Innovation
Agile Strategy Capability		1.000	1.142		1.000
Digital Platform Capability			1.209		
Firm Performance					
Intellectual Capital	1.000				
Service Innovation			1.178		

Structural model evaluation reveals robust support for hypothesized direct relationships (Table 4). Intellectual capital significantly influences agile strategy capability (β=0.458, t=9.111, p<0.001, f^2=0.266), demonstrating medium-to-large effect size confirming knowledge assets enable strategic agility development (Hair & Sarstedt, 2019). Agile strategy capability exerts substantial positive effects on digital platform capability (β=0.308, t=5.469, p<0.001, f^2=0.105), service innovation (β=0.268, t=4.113, p<0.001, f^2=0.077), and firm performance (β=0.629, t=15.223, p<0.001, f^2=0.657), with performance relationship exhibiting large effect size indicating strategic agility constitutes critical performance driver. Service innovation significantly enhances firm performance (β=0.181, t=3.591, p<0.001, f^2=0.053), supporting innovation-performance linkages. However, digital platform capability demonstrates non-significant performance effects (β=-0.034, t=0.678, p=0.498, f^2=0.002), suggesting platform investments require complementary capabilities for performance realization (Ravichandran, 2018).

Mediation analysis through variance accounted for (VAF) examination reveals mixed support for indirect pathways (Table 7). Simple mediation through agile strategy capability (H7: IC→ASC→FP) demonstrates strong partial complementary mediation with VAF=48.49%, indicating strategic agility substantially mediates intellectual capital-performance transformation (Hair & Sarstedt, 2019). Serial mediation through digital platform capability (H8: IC→ASC→DPC→FP) receives no support (VAF=-1.59%) due to non-significant DPC-performance relationship, suggesting technological transformation pathway proves ineffective absent complementary organizational capabilities (Ravichandran, 2018). Serial mediation through service innovation (H9: IC→ASC→SI→FP) demonstrates significant but weak partial mediation (VAF=6.77%), indicating service transformation pathway operates yet direct effects dominate. Comprehensive model VAF=14.60% reveals that while multiple indirect pathways operate, direct intellectual capital-performance effects remain predominant mechanism, suggesting resource-based advantages persist alongside capability-mediated effects (Dickson, 1996).

Coefficient of determination assessment reveals varying explanatory power across endogenous constructs (Table 5). Firm performance exhibits approaching-moderate explained variance (R^2=0.473, R^2adj=0.467), indicating that intellectual capital, agile strategy capability, digital platform capability, and service innovation collectively explain 47.3% of performance variation, with substantial variance remaining attributable to unexamined factors (Hair et al., 2019).

Agile strategy capability demonstrates weak explained variance (R^2=0.210, R^2adj=0.207), suggesting intellectual capital accounts for 21.0% of strategic agility variation, indicating additional antecedents warrant investigation. Digital platform capability (R^2=0.095, R^2adj=0.092) and service innovation (R^2=0.072, R^2adj=0.069) exhibit weak explanatory power, revealing that agile strategy capability alone insufficiently explains technological and service innovation variance, suggesting complementary organizational factors—such as technological competence, innovation culture, or resource availability—constitute critical enablers requiring theoretical incorporation (Teece & D.J., 2007).

Predictive relevance assessment through Stone-Geisser Q^2 via blindfolding procedure demonstrates model's capability predicting endogenous construct values (Table 6). Firm performance exhibits approaching-large predictive relevance (Q^2=0.343), confirming model accurately predicts performance outcomes beyond sample data (Hair et al., 2019). Agile strategy capability demonstrates small-to-medium predictive relevance (Q^2=0.118), indicating intellectual capital adequately predicts strategic agility development. However, digital platform capability (Q^2=0.061) and service innovation (Q^2=0.051) exhibit weak predictive relevance, suggesting model insufficiently captures factors driving technological and service innovation capabilities. All Q^2 values exceed zero threshold, confirming predictive validity, though weak values for DPC and SI indicate theoretical elaboration needed incorporating additional innovation antecedents technological readiness, organizational culture, resource munificence to enhance predictive accuracy.

Out-of-sample predictive performance assessment through PLS predict procedure reveals varying prediction accuracy across endogenous constructs (Table 7). Agile strategy capability demonstrates highest predictive power (Q^2predict=0.198, RMSE=0.903, MAE=0.702), indicating model accurately predicts strategic agility beyond sample data (Shmueli et al., 2019). Firm performance (Q^2predict=0.114, RMSE=0.953, MAE=0.667), service innovation (Q^2predict=0.112, RMSE=0.954, MAE=0.782), and digital platform capability (Q^2predict=0.102, RMSE=0.958, MAE=0.759) exhibit moderate predictive accuracy with higher prediction errors. All Q^2predict values exceed zero, confirming model possesses out-of-sample predictive validity. Lower RMSE and MAE values for firm performance relative to other constructs indicate superior prediction accuracy for performance outcomes, validating model's practical utility for managerial decision-making applications (Shmueli et al., 2019).

Table 7. Out-of-Sample Predictive Performance: PLS Predict Assessment

Construct	Q^2predict	RMSE	MAE	Predictive Accuracy	Ranking
Agile Strategy Capability	0.198	0.903	0.702	Highest	1st
Firm Performance	0.114	0.953	0.667	Moderate-High	2nd
Service Innovation	0.112	0.954	0.782	Moderate	3rd
Digital Platform Capability	0.102	0.958	0.759	Moderate	4th

Discussion

Intellectual capital demonstrates a statistically significant yet theoretically modest influence on agile strategy capability, revealing a notable dynamic that warrants further examination. While empirical findings corroborate previous research demonstrating knowledge assets enable strategic responsiveness (Al-Omoush et al., 2022; Somwethee et al., 2023), the limited explained variance necessitates theoretical interrogation: intellectual capital accounts for merely one-fifth of strategic agility variance, indicating substantial unexplained variation requiring elucidation. Unmeasured knowledge dimensions beyond aggregate intellectual capital constructs may exert influence, with distinctions between explicit and tacit knowledge, knowledge transfer characteristics ranging from sticky to fluid, and varying knowledge ambiguity levels Szulanski, (1996) differentially impacting agility development. Moreover, non-knowledge organizational and environmental factors may constitute more proximal agility antecedents, as (Leitner, 2022) demonstrated environmental turbulence substantially attenuates intellectual capital-performance relationships, while Effendi et al, (2024) established ambidextrous leadership moderates intellectual capital effectiveness, suggesting leadership capabilities, organizational culture, and environmental dynamism prove more immediate determinants than knowledge asset stocks.

Reciprocal causality complicates unidirectional model specifications, as agile organizations systematically cultivate superior intellectual capital through continuous learning mechanisms and strategic talent acquisition (Teece & D.J., 2007), indicating potential co-evolutionary dynamics wherein knowledge assets and dynamic capabilities develop through mutually reinforcing processes. Cross-sectional design constraints prevent causal direction determination, necessitating longitudinal investigation capturing feedback mechanisms and path-dependent development trajectories. Furthermore, measurement validity concerns emerge

regarding perceptual operationalization potentially inadequately capturing objective knowledge asset quality, with self-reported measures possibly reflecting respondents' awareness rather than actual knowledge depth, breadth, or actionability, suggesting systematic measurement error may attenuate observed relationships.

Agile strategy capability demonstrates substantial effects across multiple outcomes yet reveals critical effect size variations challenging universalistic dynamic capability assumptions. Large effects on firm performance contrast sharply with medium effects on digital platform capability and service innovation, suggesting strategic agility's influence proves fundamentally domain-dependent rather than universally potent, contradicting Teece & D.J., (2007) emphasis on sensing-seizing-reconfiguring as uniformly powerful across organizational domains. This asymmetry reflects capability specificity inadequately recognized in abstract dynamic capability theorizing, wherein Galunic & Eisenhardt, (2001) distinguished dynamic capabilities as context-specific despite possessing common features. Strategic agility's manifestation in performance domains—where rapid decision-making, resource reallocation, and market responsiveness directly translate to competitive advantage—differs fundamentally from manifestation in innovation domains requiring sustained experimentation, failure tolerance, and long-term investment horizons. Performance outcomes respond immediately to strategic responsiveness (Oliveira-Dias et al., 2023), while innovation outcomes require prolonged development where agility facilitates but does not guarantee success (Areerakulkan & Sumrit, 2025).

Table 4. Structural Model Results: Direct Effects, Indirect Effects, and Mediation Analysis

Path	Original Sample (O)	STDEV	T Statistics	P Values	f^2	2.5%	97.5%	Decision
Agile Strategy Capability → Digital Platform Capability	0.308	0.056	5.469	0.000	0.105	0.202	0.422	Supported
Agile Strategy Capability → Firm Performance	0.629	0.041	15.223	0.000	0.657	0.542	0.703	Supported
Agile Strategy Capability → Service Innovation	0.268	0.065	4.113	0.000	0.077	0.146	0.404	Supported
Digital Platform Capability → Firm Performance	-0.034	0.050	0.678	0.498	0.002	-0.133	0.066	Not Supported
Intellectual Capital → Agile Strategy Capability	0.458	0.050	9.111	0.000	0.266	0.363	0.561	Supported
Service Innovation → Firm Performance	0.181	0.050	3.591	0.000	0.053	0.092	0.288	Supported

Table 5. Coefficient of Determination (R^2) and Explained Variance

Endogenous Construct	R^2	R^2adj	Explained Variance	Classification
Agile Strategy Capability	0.210	0.207	21.0%	Weak
Digital Platform Capability	0.095	0.092	9.5%	Weak
Service Innovation	0.072	0.069	7.2%	Weak
Firm Performance	0.473	0.467	47.3%	Approaching Moderate

Table 6. Predictive Relevance Assessment: Stone-Geisser Q^2 Statistics

Construct	SSO	SSE	Q^2	Predictive Relevance	Classification
Intellectual Capital	1,200	1,200	0.000	N/A	Exogenous
Agile Strategy Capability	1,200	1,058.972	0.118	Yes ($Q^2 > 0$)	Small-to-Medium
Digital Platform Capability	1,200	1,126.405	0.061	Yes ($Q^2 > 0$)	Small
Service Innovation	1,200	1,138.728	0.051	Yes ($Q^2 > 0$)	Small
Firm Performance	1,500	986.152	0.343	Yes ($Q^2 > 0$)	Approaching Large

Complementary capability requirements inadequately specified in current model provide alternative explanation for asymmetric effects. Ravichandran, (2018) demonstrated digital platform effectiveness depends on complementary organizational capabilities beyond agility alone, while Vial, (2019) showed digital transformation requires technological competence, strategic alignment, and change management capabilities operating synergistically. Similarly, service innovation necessitates customer involvement, cross-functional collaboration, and innovation culture, suggesting strategic agility constitutes necessary but insufficient condition for innovation success. Organizations possessing strategic agility without complementary capabilities may sense opportunities rapidly yet lack execution capabilities, creating agility-innovation gaps. Moreover, strong agility-performance relationships warrant critical scrutiny regarding causality direction, as high-performing organizations possess resource slack enabling experimentation, attract superior talent, and enjoy legitimacy facilitating stakeholder collaboration, suggesting reciprocal relationships wherein performance success and strategic agility reinforce mutually through virtuous cycles rather than unidirectional causation.

Non-significant digital platform capability-performance relationship constitutes this study's most theoretically disruptive finding, fundamentally challenging prevailing digital transformation orthodoxy dominating contemporary strategic management discourse. Extensive literature documents digital technology's transformative performance impacts (Shen et al., 2022), creating strong theoretical expectations for positive relationships, yet the null finding demands rigorous theoretical reconciliation rather than dismissal as anomaly. Competing theoretical explanations merit systematic evaluation. Full mediation hypothesis suggests digital platform capability influences performance entirely through unmeasured mediating mechanisms—customer satisfaction, operational efficiency, brand reputation—beyond current model's explicit agility mediation, though (Ravichandran, 2018) demonstrated organizational agility fully mediates platform-performance relationships. Threshold effect hypothesis proposes nonlinear relationships wherein platforms require minimum capability levels before generating benefits, with aggregate linear analysis masking nonlinear patterns when below-threshold costs cancel above-threshold benefits, aligning with S-curve diffusion patterns and competency trap dynamics (Contigiani & Levinthal, 2019). Temporal lag hypothesis suggests J-curve patterns with initial negative effects from learning costs and organizational disruption preceding delayed positive effects as learning accumulates and network effects materialize (Cenamor et al., 2019), wherein cross-sectional analysis potentially captures neutral phases preceding positive manifestation. Contextual contingency hypothesis proposes infrastructure constraints, institutional underdevelopment, and resource scarcity characteristic of Eastern Indonesia contexts fundamentally attenuate platform-performance linkages, as platforms require complementary infrastructure—internet connectivity, digital payments, logistics networks—to function effectively (Osorio-Oliveros et al., 2022).

Critical evaluation reveals plausibility hierarchies among competing explanations, with contextual contingency possessing strongest empirical support from emerging market literature consistently documenting infrastructure constraints (Ciampi et al., 2022), while temporal lag explanation possesses strong theoretical grounding requiring longitudinal validation. Threshold and full mediation explanations remain speculative absent explicit nonlinear testing and comprehensive parallel mediation modeling, suggesting contextual contingency and temporal lag merit priority theoretical attention. The finding's theoretical implications prove profound, fundamentally challenging technology determinism assumptions that technological capabilities automatically generate competitive advantages prevalent in digital transformation discourse. Technology proves necessary but insufficient for performance enhancement, requiring complementary capabilities, infrastructure foundations, temporal development, and organizational learning for effectiveness realization. This demands nuanced theorization incorporating contextual enablers, capability complementarities, temporal dynamics, and implementation barriers beyond simplistic technology-performance models dominating practitioner thinking, emphasizing technology effects prove fundamentally context-dependent rather than universal across institutional, infrastructural, and resource-availability settings.

Strong partial complementary mediation through agile strategy capability provides empirical adjudication in longstanding resource-based view versus dynamic capability view debates. Rather than paradigmatic competition, findings demonstrate both perspectives capture partial truth, with intellectual capital generating substantial direct performance effects alongside indirect effects via strategic agility orchestration. However, direct effects' predominance over indirect effects challenges recent theoretical trends emphasizing dynamic capabilities as dominant competitive advantage sources (Teece & D.J., 2007), creating theoretical discomfort for capability-centric scholars while vindicating resource-centric perspectives. Three interpretations reconcile this tension. Measurement timing may favor resource over capability effects, as intellectual capital generates immediately observable performance benefits while dynamic capability effects manifest through environmental adaptation requiring extended periods, suggesting cross-sectional designs artificially inflate resource effect magnitudes. Industry characteristics moderate effect balance, with tourism's experience-intensive nature emphasizing resource-based advantages through human capital quality and service delivery excellence, contrasting with technology industries where environmental dynamism favors capability effects. Measurement breadth asymmetries create artificial imbalances, as comprehensive intellectual capital operationalization encompassing three dimensions contrasts with narrow agile strategy capability measurement excluding other dynamic capabilities, potentially inflating apparent resource predominance.

Serial mediation findings reveal critical pathway asymmetries challenging equivalent pathway assumptions. Service innovation pathway operates significantly yet weakly, while digital platform pathway proves non-significant, suggesting transformation mechanism viability proves fundamentally unequal. In resource-constrained emerging market contexts, service pathways prove more viable than technological pathways due to lower capital requirements and infrastructure independence (McDowell et al., 2018), while technological pathways require substantial complementary capabilities often absent. Pathway viability proves context-dependent, demanding contingency-based theorizing rather than universal pathway models.

This research contributes theoretically through reconciliation, refinement, and contextualization. Reconciliation addresses resource-based view versus dynamic capability view debates, demonstrating complementary operation rather than paradigmatic competition, though direct effect predominance challenges capability-centric overemphasis, suggesting theoretical recalibration toward balanced resource-capability integration. Refinement explicates strategic agility as contingent mediating mechanism resolving intellectual capital-performance inconsistencies, demonstrating relationships prove contingent on agility presence, with positive relationships emerging when agility activates knowledge assets and weak relationships when agility remains underdeveloped. Contextualization challenges universal theory assumptions through demonstrating systematic relationship variations, as digital platform-performance non-significance, weak innovation mediation, and modest knowledge-agility explanation indicate developed market relationships do not generalize automatically to emerging market contexts, demanding explicit boundary condition specification and cross-national validation. Future research imperatives include longitudinal designs disentangling causality and capturing temporal dynamics, multi-source designs combining perceptual and objective indicators enhancing measurement validity, cross-national comparative research testing infrastructure and institutional moderation effects, and nonlinear modelling revealing threshold effects and complementarity dynamics obscured by linear specifications.

The findings offer several important managerial implications for tourism firms operating in emerging and digitally evolving environments. First, managers should recognize that intellectual capital alone is insufficient to ensure superior performance outcomes. Investment in human, structural, and relational capital must be complemented by deliberate efforts to strengthen agile strategic processes that enable rapid sensing and adaptation. Second, the results suggest that digital platform investments do not automatically translate into improved performance. Firms should therefore prioritize strategic alignment, capability integration, and service innovation alongside technological adoption. Finally, developing service innovation capabilities appears particularly important in service-dominant industries such as tourism, where customer experience and responsiveness constitute primary sources of competitive advantage.

This study has several limitations that should be acknowledged. First, the use of cross-sectional data limits causal inference and does not capture dynamic capability development over time. Second, reliance on self-reported measures from single respondents may introduce perceptual bias despite procedural and statistical controls. Third, the empirical focus on tourism firms in Eastern Indonesia may limit generalizability to other industries or national contexts. Future research could employ longitudinal designs, multi-source data, and cross-country comparisons to further validate and extend the findings.

CONCLUSION

This research examines how intellectual capital contributes to firm performance through agile strategy capability in the tourism industry of Eastern Indonesia. The findings show that intellectual capital significantly strengthens agile strategy capability, which in turn enhances service innovation and overall firm performance. While the indirect role of agile strategy capability is meaningful, the direct influence of intellectual capital remains substantial. In contrast, digital platform capability does not show a significant direct effect on performance in this context, suggesting that technology investments alone may not automatically generate competitive outcomes, particularly in environments characterized by infrastructure and institutional constraints. The study contributes to the literature by clarifying how knowledge-based resources are translated into performance through strategic adaptability. Rather than positioning theoretical perspectives in opposition, the results indicate that resource-based and capability-based views operate in a complementary manner. The findings also highlight the importance of contextual factors in shaping the effectiveness of digital capabilities, suggesting that their performance impact may vary across environments.

Practically, the results suggest that tourism managers in emerging and resource-constrained regions should prioritize strengthening strategic agility and service innovation capabilities alongside, rather than solely relying on, digital platform investments. Policymakers should also support infrastructure development and institutional improvements to enhance the effectiveness of digital transformation initiatives. This study has several limitations that open avenues for future research. First, the cross-sectional design limits causal interpretation; future studies could employ longitudinal approaches to capture capability development over time. Second, reliance on single-informant survey data may introduce perceptual bias; subsequent research could incorporate multi-source or objective performance measures. Third, the focus on a single regional context limits generalizability; cross-national comparisons would help assess whether the observed relationships hold in different institutional and economic environments.

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AUTHOR CONTRIBUTION STATEMENT

The author contributed to all aspects of this research, including conceptualization of the theoretical framework integrating Dynamic Capability Theory and Resource Advantage Theory, development of the research methodology, instrument design and adaptation, data collection from hotels and resorts in Eastern Indonesia, PLS-SEM analysis using SmartPLS 4, interpretation of findings, and preparation of the full manuscript. The author is solely responsible for all sections of this paper, including the literature review, structural model development, results, discussion, and conclusion. No external contributions were involved in the research process.

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