



Innovation-Led Policy Pathways and Tourism Competitiveness: Building Sustainable Recovery in Emerging Destinations

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Abstract. Tourism innovation plays a vital role in driving sustainable economic recovery, particularly in emerging destinations facing post-pandemic challenges. This study examines how innovation policies shape tourism competitiveness through the Innovation-Led Policy Pathway Framework, focusing on Kerinci District, Jambi Province, Indonesia. Employing a mixed-methods approach, data were collected from 30 key stakeholders through surveys and semi-structured interviews representing government, academia, industry, and community sectors. Quantitative analysis reveals that Innovation Outputs ($\beta = 0.41$, $p < 0.01$) and Enabling Environment ($\beta = 0.32$, $p < 0.05$) significantly influence tourism competitiveness ($R^2 = 0.59$), with reliability coefficients above 0.84. Qualitative findings highlight policy fragmentation, limited digital literacy, and weak institutional linkages as constraints, while community creativity and eco-innovation emerge as local strengths. The study concludes that competitiveness improves when innovation inputs such as human capital and digital readiness are transformed into tangible outputs through coordinated policies and collaborative governance. Strengthening policy coordination, digital capacity, and eco-innovation standards is recommended to embed innovation as a systemic driver of sustainable tourism growth aligned with SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure).

Keywords: Eco-Innovation; Innovation Policy; SDGs; Sustainable Tourism; Tourism Competitiveness.

1. INTRODUCTION

Tourism has become a central pillar of sustainable economic recovery following the disruptions of the COVID-19 pandemic. Across the globe, destinations are rethinking how tourism can drive inclusive growth while promoting innovation, sustainability, and resilience (Gössling & Hall, 2021). In Indonesia, this process is particularly significant given the country's vast natural and cultural resources and its reliance on tourism as a strategic economic sector. Yet despite its potential, tourism development remains regionally imbalanced, with many destinations especially those outside major urban or coastal hubs facing challenges related to innovation capacity, institutional coordination, and policy integration (Hall, 2021; Prayag, 2022). Within the framework of the Sustainable Development Goals (SDGs), especially SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure), innovation is increasingly recognized as a key driver of competitiveness and sustainability (OECD., 2023; UNWTO., 2024).

The tourism sector's transition toward an innovation-led model represents not merely a technological evolution but a paradigmatic shift in governance and development priorities. As Brouder et al., (2022) and Hjalager, (2023) note, innovation in tourism today encompasses policy, social, digital and ecological dimensions. This holistic view underscores that competitiveness no longer depends solely on the abundance of natural attractions or

infrastructure, but on how destinations adapt through policy innovation, digital transformation, and collaborative governance (Senathirajah et al., 2023). The quadruple helix framework, integrating government, academia, industry, and society, has become a widely used lens for fostering innovation ecosystems that strengthen regional competitiveness (Marques et al., 2023). In this context, public policy functions as the coordinating mechanism that connects institutional learning with tangible innovation outcomesan especially critical factor in developing and rural areas where resources and capacities remain constrained.

Kerinci District, located in Jambi Province on the island of Sumatra, offers a compelling context for examining these dynamics. Known for its stunning natural environment, including the Kerinci Seblat National Park, a UNESCO World Heritage Site, as well as its rich cultural heritage and agricultural landscapes, Kerinci has long been viewed as a hidden gem of Indonesian ecotourism. However, the district's tourism sector contributes modestly to local income compared to its vast potential. Barriers such as limited digital infrastructure, fragmented institutional collaboration, and weak innovation support mechanisms have hindered the development of a competitive tourism ecosystem (Kurniawan & Widodo, 2023). While more prominent destinations such as Banyuwangi or Lake Toba have successfully implemented innovation-oriented tourism policies and digital governance systems(Darma & Nugraha, 2021). Kerinci continues to face challenges in translating its resources into sustainable economic value.

Recent policy initiatives in Kerinci including community-based tourism programs, digital promotional campaigns, and training for creative-economy entrepreneurs reflect growing awareness of innovation's importance. Yet, these efforts remain fragmented and lack integration within a coherent innovation policy framework. This gap highlights the need for a systemic policy model that links innovation inputs (such as education, R&D, and digital literacy) to enabling environments (policy coordination, funding, infrastructure), and ultimately to measurable outputs in competitiveness and sustainability. As the OECD., (2023) argues, destinations that embed innovation in their policy ecosystems exhibit faster recovery rates and stronger economic resilience. Similarly, UNWTO., (2024) emphasizes that innovation-driven governance is crucial to building competitiveness and achieving long-term sustainability goals.

Empirical studies published in the past five years further strengthen this argument. Dwyer & Kim, (2020) revisited the competitiveness model of tourism destinations and found that innovation capacity significantly influences both recovery speed and sustainability

performance. Brouder et al., (2022) demonstrated how innovation ecosystems enhance adaptive responses to crises, while (Darma & Nugraha, 2021; Hapsari & Hadi, 2022) showed that digital innovation and smart technologies accelerate market diversification and operational resilience. In Indonesia, Suharto et al., (2023) revealed that regions with higher innovation indices experience stronger tourism growth, particularly when supported by well-structured local policy frameworks. These findings collectively suggest that the link between innovation policy and competitiveness is not theoretical but empirically observable across varying contexts.

The post-pandemic period has also redefined the meaning of competitiveness itself. As López-Guzmán et al., (2021) and Alvarez-Risco et al., (2023) highlight, competitiveness now involves the ability to maintain social inclusion, environmental balance, and cultural authenticity while pursuing economic gains. In this sense, innovation becomes the mechanism that integrates sustainability into economic strategies a process often referred to as eco-innovation. For destinations such as Kerinci, where biodiversity and cultural identity form the foundation of tourism appeal, eco-innovation offers pathways for creating unique, resilient, and marketable experiences. Policies that encourage digital innovation, green investment, and creative entrepreneurship can thus transform peripheral destinations into competitive, sustainable regions (UNWTO., 2024).

Against this backdrop, the present study seeks to examine how innovation policies can enhance tourism competitiveness and support sustainable economic recovery in Kerinci District. Specifically, it aims to (1) identify the key innovation-policy components that influence competitiveness, (2) evaluate the effectiveness of policy implementation in fostering innovation-led recovery, and (3) develop a policy pathway model applicable to regional contexts across Indonesia. The study adopts a mixed-methods approach, combining quantitative data from innovation and competitiveness indices with qualitative insights from policy analysis and stakeholder interviews. This dual approach enables a holistic understanding of how innovation operates both as an institutional process and as a developmental outcome.

Conceptually, the study is grounded in the Innovation-Led Policy Pathway Framework, which integrates four interrelated stages: innovation inputs, enabling environments, outputs, and outcomes. Innovation inputs refer to foundational resources such as human capital, digital literacy, and R&D investment. The enabling environment encompasses policy coherence, institutional collaboration, and infrastructure support. Outputs manifest as eco-tourism innovation, cultural-product diversification, and digital destination branding, while outcomes include enhanced competitiveness, job creation, and sustainable growth (Wider et al., 2023).

This framework aligns with contemporary discussions in tourism innovation literature (Brouder et al., 2022; OECD., 2023) and provides a structure for assessing how local innovation policies can drive SDG-aligned transformation. In summary, innovation is no longer a peripheral factor but a central mechanism for tourism development in the 2020s.

By focusing on Kerinci, this research contributes both theoretically and practically: it advances understanding of how innovation-policy integration can drive regional competitiveness and offers a replicable model for sustainable tourism governance. In doing so, the study bridges the gap between theory and local policy practice, demonstrating that innovation is the most strategic pathway toward building resilient, inclusive, and competitive tourism destinations in the post-pandemic world.

2. LITERATURE REVIEW

The nexus between innovation and tourism competitiveness has become a defining theme in contemporary tourism research, especially in the post-pandemic context where resilience and sustainability are central policy concerns. Scholars increasingly conceptualize innovation as a multidimensional construct that encompasses technological, organizational, social, and policy dimensions (Brouder et al., 2022; Hjalager, 2023). Rather than a linear process, innovation in tourism is systemic emerging through interactions among diverse actors within an ecosystem. This systems perspective highlights that competitiveness in modern tourism is no longer driven merely by physical assets or destination image, but by the capacity to adapt, learn, and collaborate across multiple institutional and community levels (Marques et al., 2023).

Innovation and tourism competitiveness

Tourism competitiveness has traditionally been framed as a destination's ability to attract and satisfy visitors while ensuring the sustainability of its resources (Dwyer & Kim, 2020). In recent years, the concept has expanded to integrate innovation as a key determinant of competitive advantage. Empirical evidence shows that destinations with robust innovation ecosystems where knowledge exchange and technological capabilities are well developed tend to recover faster from crises and maintain higher levels of productivity and visitor satisfaction (OECD., 2023; UNWTO., 2024). Innovation strengthens the adaptability of tourism systems by stimulating creativity in service design, marketing, and management processes. According to López-Guzmán et al., (2021), competitiveness in the current decade hinges on a destination's ability to embed sustainability and innovation simultaneously, making them mutually

reinforcing processes rather than competing objectives. Within this framework, eco-innovation has emerged as a strategic response to global sustainability challenges. Eco-innovation links environmental stewardship with economic performance, positioning tourism enterprises to create value through sustainable practices (Alvarez-Risco et al., 2023). In destinations with rich natural and cultural resources such as Kerinci eco-innovation is particularly relevant because it leverages environmental conservation and local culture as competitive differentiators (Richards, 2021). OECD (2023) identifies eco-innovation policies as vital instruments for green recovery, arguing that they not only reduce ecological footprints but also enhance market appeal through responsible branding.

Innovation systems and policy integration

The innovation systems theory, widely applied in industrial and regional studies, has recently gained prominence in tourism research (Brouder et al., 2022). It emphasizes that innovation arises through complex, non-linear interactions among government, academia, industry, and society collectively conceptualized as the quadruple helix (Marques et al., 2023; Romão, 2022). In this ecosystem, public policy serves as a coordinating mechanism that fosters connectivity and knowledge flows between institutions. Successful innovation systems depend on policy coherence and institutional alignment, where incentives, regulations, and infrastructure converge to support experimentation and learning.

Policy innovation is now regarded as a fundamental element of destination competitiveness. The OECD (2023) asserts that destinations capable of institutionalizing innovation within their policy frameworks by integrating sustainability, technology, and governance reforms demonstrate higher resilience and competitiveness. Similarly, UNWTO (2024) emphasizes that policy coherence across levels of government is crucial for effective innovation diffusion, particularly in developing economies. The challenge for regions such as Kerinci lies not in the absence of innovation initiatives but in the fragmentation of policy frameworks that limit their systemic impact. Suharto et al., (2023) found that regional innovation success in Indonesia depends on the synchronization between local governance and national innovation strategies. Where this coordination is weak, innovation tends to remain isolated and short-lived.

Digital innovation and smart tourism

Digital transformation represents one of the most visible and influential forms of innovation in the tourism sector. Technological advances such as artificial intelligence, data analytics, and virtual reality have revolutionized how destinations manage operations, design visitor experiences, and engage with markets (Buhalis, 2020; Gretzel et al., 2020; Sigala,

2023). The emergence of smart tourism encapsulates this evolution where destinations utilize data-driven systems to enhance efficiency, accessibility, and personalization. Xiang & Fesenmaier (2022) demonstrate that digital innovation improves not only competitiveness but also resilience by enabling real-time monitoring and adaptive management.

However, the literature also highlights the persistent digital divide that limits the diffusion of innovation in peripheral regions (Hjalager, 2023). Destinations with limited connectivity, digital literacy, or investment capacity risk being excluded from the benefits of technological progress. Bridging this divide requires deliberate policy interventions such as infrastructure development, digital education, and financial incentives that ensure equitable participation in innovation ecosystems (OECD., 2023). In the context of Kerinci, where digital infrastructure remains underdeveloped, these challenges underscore the need for tailored innovation policies that address local capacity constraints while leveraging existing cultural and natural assets.

Governance and institutional innovation

Governance innovation has emerged as a distinct dimension of competitiveness, particularly in contexts where institutional fragmentation undermines policy effectiveness. Research by Marques et al., (2023) and Suharto et al., (2023) shows that participatory governance models those involving collaboration among local communities, government, and private actors generate more sustainable innovation outcomes. This aligns with the quadruple helix model, in which knowledge and innovation emerge through continuous dialogue between public, private, academic, and social actors.

Institutional innovation often takes the form of regional innovation agencies, public–private partnerships and destination management organizations (DMOs) that act as intermediaries between levels of government (UNWTO, 2024). These entities are essential in translating policy goals into actionable strategies, fostering experimentation, and ensuring stakeholder accountability. Hjalager (2023) emphasizes that governance innovation requires not only structural reformss but also cultural change within institutions shifting from bureaucratic control to collaborative learning. This perspective is highly relevant for Indonesia’s decentralized governance system, where local governments possess substantial autonomy yet often lack the technical capacity to design and manage complex innovation programs (Hossain & Rahman, 2023).

Gaps and conceptual framework

Despite growing interest in innovation-led competitiveness, several research gaps remain. First, most studies have focused on national or urban destinations, leaving rural and nature-based regions underexplored (OECD, 2023; UNWTO, 2024). Second, while the role of technology and entrepreneurship has been widely discussed, the link between policy innovation and systemic competitiveness remains under-theorized in emerging economies. Finally, limited empirical evidence exists on how localized innovation policies contribute to sustainable recovery and SDG achievement.

To address these gaps, this study adopts the Innovation-Led Policy Pathway Framework, integrating four interconnected dimensions: innovation inputs, enabling environments, outputs, and outcomes. The framework conceptualizes innovation inputs as foundational resources education, R&D, and digital literacy that feed into enabling environments comprising policy coordination, institutional collaboration, and infrastructure. These elements generate outputs such as eco-innovation, digital branding, and cultural diversification, which collectively drive competitiveness, employment, and sustainability outcomes (Brouder et al., 2022; OECD, 2023). By applying this framework to the case of Kerinci, the study contributes to the literature by contextualizing how regional innovation systems can function as pathways for sustainable economic recovery in developing economies.

3. METHODS

This study employs a mixed-methods approach that integrates quantitative and qualitative analyses to examine how innovation policies enhance tourism competitiveness and contribute to sustainable economic recovery in Kerinci District, Jambi Province, Indonesia. The use of mixed methods allows for both empirical measurement and contextual interpretation, ensuring a comprehensive understanding of how policy, innovation, and sustainability interact within regional tourism systems. As Creswell & Creswell (2021) argue, the combination of quantitative and qualitative methods enhances explanatory power and provides deeper insight into complex socio-economic phenomena such as tourism innovation and competitiveness (Darma & Nugraha, 2021).

The research adopts a sequential explanatory design, beginning with quantitative analysis followed by qualitative exploration. The quantitative phase uses secondary data drawn from established global and national indicators, including the Global Innovation Index (GII), the Travel and Tourism Competitiveness Index (TTCI) and Indonesia's Regional Innovation Index issued by the Ministry of Home Affairs. The analysis covers the 2020–2024 period,

corresponding with Indonesia's post-pandemic recovery phase. Indicators such as R&D expenditure, digital infrastructure, education, governance effectiveness, and sustainability performance were standardized to develop a Tourism Innovation Competitiveness Index (TICI). This index captures the relationship between innovation capacity and tourism competitiveness within the regional context of Kerinci.

Kerinci District was chosen as the case study because it combines rich ecological and cultural assets with evolving governance and innovation dynamics. The district encompasses Kerinci Seblat National Park, a UNESCO World Heritage Site, along with vibrant local traditions, agricultural tourism, and cultural heritage. Despite its potential, the tourism sector in Kerinci faces significant structural challenges, including limited digital infrastructure, fragmented policy coordination, and low innovation adoption rates (Darma & Nugraha, 2021; Hapsari & Hadi, 2022). These features make Kerinci an ideal site for analyzing how innovation-led policies can transform peripheral destinations into competitive, sustainable tourism systems.

The qualitative phase of this research was designed to deepen understanding of policy dynamics, institutional linkages, and stakeholder perspectives. Data were collected through semi-structured interviews and policy document analysis conducted between February and April 2025. A total of 30 respondents were purposively selected, reflecting the quadruple helix model of innovation ecosystems. The sample included 5 government officials (from tourism, innovation, and regional planning offices), 12 tourism entrepreneurs (operating in hospitality, guiding, and creative industries), 7 community leaders involved in eco-tourism initiatives, and 6 representatives from academia and innovation-focused NGOs. This composition ensured that diverse institutional perspectives were represented. Interviews were conducted in person and online, each lasting approximately 45–75 minutes. The interview guide explored topics such as innovation policy design, collaboration networks, digital transformation, and sustainable tourism governance.

Policy document analysis complemented the interviews, focusing on strategic plans such as the *Indonesia Tourism Innovation Policy Report* (Kemenparekraf, 2024), the *Jambi Provincial Tourism Master Plan (2020–2025)*, and regional innovation policy documents. These texts were reviewed to identify policy objectives, implementation mechanisms, and institutional linkages related to tourism competitiveness.

Quantitative data were analyzed using SPSS 26 and R software, applying descriptive statistics, Pearson correlation, and multiple regression techniques to examine the influence of

innovation variables (education, R&D investment, and digital readiness) on tourism competitiveness outcomes (visitor growth, employment, and sustainability scores). The results provided a measurable foundation for validating the conceptual relationships proposed in the framework.

Qualitative data were processed through thematic content analysis using NVivo 14 software, following the structured coding procedures outlined by Naeem et al., (2023). Three stages of coding open, axial, and selective were used to identify and refine themes emerging from the interviews and documents. The coding process revealed key patterns related to innovation readiness, institutional collaboration, digital transformation, and policy coherence. Triangulation across methods and data sources was employed to enhance validity, ensuring that interpretations were consistent across quantitative and qualitative findings.

To maintain methodological rigor, reliability and validity tests were conducted. Cronbach's alpha coefficients for the quantitative constructs exceeded 0.80, indicating strong internal consistency, while variance inflation factor (VIF) values remained below 2.5, confirming the absence of multicollinearity. Qualitative trustworthiness was established through member checking, peer debriefing, and detailed audit trails.

The study is structured around the Innovation-Led Policy Pathway Framework, presented in Figure 1, which serves as both a conceptual model and an analytical guide. The framework conceptualizes innovation as a dynamic system composed of four interrelated dimensions: Innovation Inputs, Enabling Environment, Innovation Outputs and Sustainable Outcomes. Innovation Inputs refer to the foundational element's education, research capacity, and digital literacy that drive creative and technological processes. The Enabling Environment includes policy coordination, institutional collaboration, infrastructure development, and funding mechanisms that facilitate innovation diffusion. Innovation Outputs represent tangible activities such as eco-tourism development, cultural product diversification, and digital destination branding. Finally, Sustainable Outcomes encompass the measurable impacts of innovation on competitiveness, employment, and sustainability, aligning with SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure).

The framework operates as a diagnostic and evaluative tool that connects innovation inputs to tourism outcomes through enabling mechanisms. Quantitative indicators are mapped across these four dimensions, while qualitative evidence provides interpretive context explaining the causal linkages between them. This integrative framework ensures that both the structural and behavioral aspects of innovation are captured within the analysis, aligning with recent methodological recommendations in tourism policy research (Brouder et al., 2022).

By combining empirical data and contextual insights, this methodological design provides a robust foundation for assessing how innovation-led policies contribute to tourism competitiveness and sustainable recovery in Kerinci. The approach allows the study to move beyond descriptive analysis toward theory-informed explanation, generating practical recommendations for policymakers, industry actors, and local communities seeking to implement innovation-driven strategies in Indonesia’s regional tourism sector.

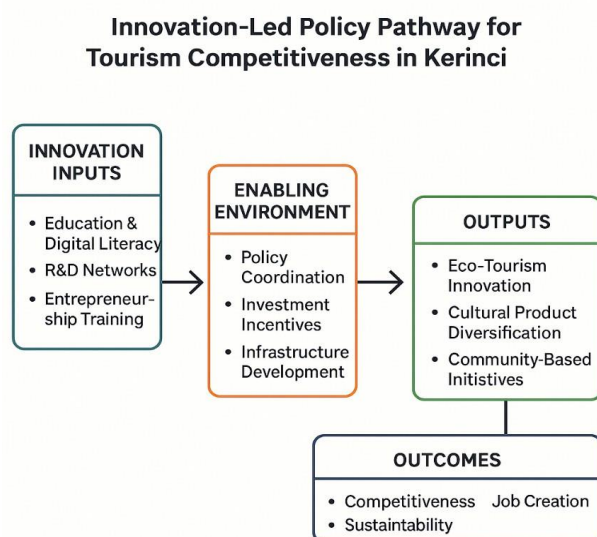


Figure 1. Innovation-Led Policy Pathway Framework for Sustainable Tourism Competitiveness in Kerinci, Indonesia.

The Innovation-Led Policy Pathway Framework illustrates the systemic relationship among four interdependent components: Innovation Inputs, Enabling Environment, Innovation Outputs, and Sustainable Outcomes. It demonstrates how foundational innovation resources (education, R&D, digital literacy) interact with policy coordination and infrastructure to generate innovation outputs (eco-tourism initiatives, creative industries, and digital branding), which ultimately produce measurable sustainability and competitiveness outcomes aligned with SDG 8 and SDG 9.

4. FINDINGS AND DISCUSSION

The results of this study demonstrate that innovation-led policies have a significant and multidimensional influence on tourism competitiveness and sustainable recovery in Kerinci District, Jambi Province. Using both quantitative and qualitative data, the findings confirm the relevance of the Innovation-Led Policy Pathway Framework, showing how innovation inputs, enabling environments, and innovation outputs interact to produce measurable outcomes in competitiveness and sustainability. The mixed-method approach

provides complementary perspectives: the quantitative results establish structural relationships among variables, while the qualitative evidence contextualizes these relationships within the local governance, institutional, and community realities of Kerinci's tourism sector.

The quantitative analysis, conducted using 30 valid responses from key stakeholders representing the quadruple helix (government, academia, business, and community), revealed that innovation-related factors are closely interlinked. Reliability analysis confirmed high internal consistency, with Cronbach's alpha coefficients ranging between 0.84 and 0.90 across all constructs. Descriptive results indicate moderately high overall scores, suggesting that the tourism ecosystem in Kerinci has begun to internalize the importance of innovation as a driver of competitiveness. The highest mean value was found for Innovation Inputs ($M = 3.78$, $SD = 0.56$), followed by Sustainable Outcomes ($M = 3.72$, $SD = 0.60$), Innovation Outputs ($M = 3.65$, $SD = 0.58$), and Enabling Environment ($M = 3.41$, $SD = 0.62$). These results suggest that while stakeholders possess a solid foundation of knowledge, creativity, and digital literacy, the institutional environment particularly policy coordination and funding mechanisms remains less developed. This finding reflects the persistent structural asymmetries between resource availability and institutional functionality, a common challenge in emerging tourism regions (Brouder et al., 2022; OECD, 2023).

Table 1. Summary of Quantitative Results (N = 30).

Construct	Mean	SD	Cronbach's α	1	2	3	4
1. Innovation Inputs	3.78	0.56	0.86	—			
2. Enabling Environment	3.41	0.62	0.88	0.55**	—		
3. Innovation Outputs	3.65	0.58	0.84	0.60**	0.66**	—	
4. Sustainable Outcomes	3.72	0.60	0.90	0.58**	0.63**	0.69**	—

Correlation analysis reinforces this interpretation, revealing strong and positive associations between all constructs. The most substantial correlation was observed between Innovation Outputs and Sustainable Outcomes ($r = 0.69$, $p < 0.001$), indicating that destinations which successfully transform innovative ideas into tangible tourism products and digital branding initiatives tend to achieve higher levels of competitiveness and resilience. Similarly, Enabling Environment–Outcomes ($r = 0.63$, $p < 0.001$) and Inputs–Outcomes ($r = 0.58$, $p < 0.001$) correlations highlight the systemic nature of innovation processes, where policies, capacities, and collaboration mechanisms work interdependently. Multiple regression analysis provided further support for this model, with the overall regression being statistically significant ($R^2 = 0.59$, $F(3,26) = 12.6$, $p < 0.001$). Among the predictors, Innovation Outputs

($\beta = 0.41$, $p = 0.006$) emerged as the strongest determinant of tourism competitiveness, followed by the Enabling Environment ($\beta = 0.32$, $p = 0.018$) and Innovation Inputs ($\beta = 0.21$, $p = 0.071$). These results underline the central argument of this study: that innovation capacity alone is insufficient unless it is effectively converted into applied outputs through coherent policy environments.

The qualitative data further validate these statistical patterns and provide deeper insight into the social and institutional mechanisms underpinning them. Interviews with government officials, local entrepreneurs, community leaders, and academics revealed a mixture of optimism and frustration. Most respondents acknowledged growing innovation awareness, yet they highlighted critical governance gaps that hinder implementation. Several officials expressed concern about overlapping programs and lack of coordination across departments. One participant stated, *“Each department runs its own project, but there’s no single innovation roadmap for tourism.”* This reflects what Suharto et al., (2023) describe as the “fragmentation trap” of Indonesian regional governance, where decentralized structures sometimes weaken cross-sectoral collaboration. Such fragmentation explains the relatively lower mean score for the enabling environment and confirms that Kerinci’s innovation ecosystem is still in its consolidation phase.

From the private sector’s perspective, digital transformation emerged as both a challenge and an opportunity. Entrepreneurs acknowledged the growing importance of digital platforms for destination marketing and customer engagement but cited gaps in infrastructure and digital literacy. As one respondent explained, *“We can promote our products on social media, but we lack skills in managing online systems and understanding analytics.”* This statement illustrates the partial progress of digital adaptation a pattern consistent with the global literature, which identifies rural and nature-based destinations as slower adopters of advanced tourism technologies (Hjalager, 2023; Sigala, 2023). Consequently, the data indicate that while innovation inputs exist, their effective translation into digital outputs remains constrained by limited institutional and technological readiness.

Another recurrent theme relates to the strength of community-based innovation in Kerinci. Respondents from local cooperatives and tourism associations described creative initiatives such as eco-tourism trails, traditional tea heritage tours, and local craft revitalization. These efforts represent valuable grassroots innovations that enrich the destination’s cultural and environmental identity. However, community actors consistently expressed a need for structured policy support and capacity building. One village leader commented, *“We have*

ideas and local pride, but without funding and marketing support, our innovation stays small.”

This observation reinforces the quantitative finding that innovation outputs are the most decisive variable in determining competitiveness. Without mechanisms to connect local creativity to regional or national markets, innovation potential remains underutilized.

Environmental and sustainability considerations also featured prominently across interviews. Stakeholders recognized that innovation and sustainability are not mutually exclusive but mutually reinforcing. Many respondents linked eco-innovation such as waste management, renewable energy in tourism facilities, and conservation-based experiences with long-term competitiveness. As one academic participant noted, *“Eco-innovation is not a luxury, it’s what makes our tourism model future-proof.”* This reflects findings by Alvarez-Risco et al., (2023); López-Guzmán et al., (2021), who argue that eco-innovation simultaneously strengthens environmental responsibility and market advantage. In Kerinci’s context, integrating eco-innovation policies within tourism governance can enhance both destination image and investor confidence.

When integrated, the quantitative and qualitative findings affirm that the Innovation-Led Policy Pathway Framework provides a valid and comprehensive lens for understanding the evolution of competitiveness in Kerinci’s tourism sector. Innovation inputs, including human capital and knowledge resources, act as the foundation for creative capacity. However, these inputs must operate within a conducive enabling environment that ensures coordination, infrastructure, and financial support. The study’s regression results show that the enabling environment mediates the link between inputs and outputs, confirming that institutional efficiency and stakeholder alignment are critical to translating potential into performance. Once innovation activities materialize as concrete outputs such as eco-tourism products, digital destination branding, and creative entrepreneurship they significantly elevate destination competitiveness and sustainability outcomes. This causal sequence mirrors OECD’s (2023) argument that innovation-driven destinations outperform others not merely due to superior resources but because they institutionalize collaboration and continuous learning.

Kerinci’s case offers valuable lessons for Indonesia’s broader tourism policy landscape. First, it illustrates that innovation-led development requires coordinated governance and policy integration rather than fragmented programs. Second, it highlights the need to bridge the digital divide by investing in technological infrastructure and digital literacy to enable small and medium tourism enterprises to compete effectively. Third, it underscores the importance of community inclusion, ensuring that innovation policies empower local actors rather than imposing top-down solutions. Finally, it demonstrates that eco-innovation and sustainability

can serve as both guiding principles and competitive advantages. These findings align with regional evidence from Indonesia and ASEAN, where innovation-led governance and community-based initiatives drive competitiveness despite policy fragmentation (Lumbanraja & Sitorus, 2023; Yusof & Abdullah, 2022).

Overall, the findings reveal that innovation in tourism is not merely a technical exercise but a systemic transformation involving mindset shifts, institutional reform, and cross-sectoral collaboration. The positive relationships among innovation variables confirm that competitiveness in Kerinci is being progressively shaped by innovation-led governance, yet the process remains fragile and dependent on consistent policy execution. Strengthening inter-agency coordination, formalizing partnerships among universities, businesses, and communities, and developing local innovation platforms could accelerate the district's transition from a resource-based to an innovation-based tourism economy. These results position Kerinci as an emerging model for how rural and nature-based destinations can harness innovation to achieve sustainable development and post-pandemic economic recovery, thereby contributing directly to SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure).

5. CONCLUSION AND POLICY RECOMMENDATIONS

This study examined how innovation policies influence tourism competitiveness and sustainable economic recovery in Kerinci District, Jambi Province, through the lens of the Innovation-Led Policy Pathway Framework. Using a mixed-method approach that integrated quantitative data from 30 key stakeholders with qualitative insights from semi-structured interviews, the research provides a comprehensive understanding of how innovation inputs, enabling environments, and innovation outputs interact to produce measurable outcomes in competitiveness and sustainability. The findings confirm that innovation-led tourism development is both a strategic imperative and a practical necessity for achieving inclusive and resilient regional growth.

The results demonstrate that innovation outputs, particularly eco-tourism initiatives, creative industries, and digital branding, are the most powerful drivers of tourism competitiveness in Kerinci. Statistical analysis revealed a strong positive relationship between innovation outputs and sustainable outcomes ($r = 0.69$, $p < 0.001$), supported by a significant regression coefficient ($\beta = 0.41$, $p = 0.006$). These quantitative results were corroborated by qualitative evidence showing that destinations with strong community-based innovation and

effective policy support perform better in market adaptation, visitor satisfaction, and resilience. However, the study also found that the enabling environment remains the weakest link in Kerinci's innovation system. Fragmented governance, limited infrastructure, and insufficient inter-agency coordination hinder the conversion of innovation potential into scalable economic outcomes. Without coherent policy integration, the benefits of innovation inputs such as digital literacy, human capital, and R&D cannot be fully realized.

This study makes several theoretical and practical contributions. Theoretically, it validates the Innovation-Led Policy Pathway Framework as an effective model for analyzing the complex relationships between innovation, policy, and competitiveness in developing economies. It empirically demonstrates that innovation functions as a systemic process, not an isolated variable. Inputs (knowledge, digital literacy, R&D) provide the foundation; the enabling environment (policy coherence, governance, and infrastructure) acts as a catalyst; outputs (products, services, and branding innovations) deliver tangible impacts; and outcomes (competitiveness, employment, and sustainability) represent the final manifestation of the innovation cycle. This dynamic pathway illustrates that innovation-led tourism is a form of adaptive governance a continuous process of experimentation, learning, and institutional evolution (Brouder et al., 2022; OECD., 2023).

Practically, the study offers policy recommendations for strengthening innovation-led tourism development in Kerinci and similar emerging destinations. First, the local government should institutionalize coordination mechanisms that align tourism innovation initiatives across agencies. Establishing an Innovation Coordination Unit (ICU) under the district's development planning agency could ensure synchronization between public policy, academic research, and industry action. Such institutional integration is essential to overcome the fragmentation currently hindering efficient policy implementation.

Second, to accelerate innovation diffusion, it is vital to invest in digital infrastructure and literacy. This includes expanding broadband coverage, providing affordable internet access for tourism entrepreneurs, and implementing continuous digital skills training. As the findings show, entrepreneurs with access to digital platforms demonstrate higher competitiveness. Strengthening the digital foundation aligns with UNWTO's (2024) global tourism innovation agenda and directly contributes to SDG 9, which emphasizes the role of technological infrastructure in fostering inclusive growth.

Third, the district should promote eco-innovation as a strategic pillar of competitiveness. By embedding environmental innovation within tourism policies such as incentives for low-carbon tourism, green certification systems, and sustainable product

development Kerinci can differentiate itself in national and international markets. Eco-innovation not only preserves ecological integrity but also enhances destination reputation, thereby attracting environmentally conscious travelers. This aligns with OECD (2023) findings that sustainable innovation yields long-term competitiveness advantages and aligns directly with SDG 8, which promotes decent work through sustainable economic diversification.

Fourth, to ensure inclusivity, policy interventions must empower local communities as active innovation partners. This requires mechanisms for financial access, cooperative business models, and community entrepreneurship programs. Local innovations ranging from agro-tourism to craft production should be integrated into the regional value chain through partnerships with the private sector and digital platforms. Empowering communities ensures that innovation translates into equitable benefits, promoting both social and economic resilience.

Fifth, the study recommends enhancing collaboration between academia and government in developing innovation-oriented research and policy evaluation systems. Universities and research centers can provide critical support in designing monitoring frameworks, innovation indices, and impact assessment tools to measure progress and guide adaptive decision-making. This knowledge-driven collaboration strengthens the evidence base for future policy refinement.

In addition to these policy measures, the study highlights the need for capacity building and leadership development within the public sector. Innovation-oriented governance requires not only resources but also the right institutional mindset one that values experimentation, data-driven management, and cross-sector collaboration. Leadership training, peer learning, and exposure to best practices from other innovation-driven destinations (e.g., Banyuwangi and Lake Toba) can accelerate the transformation of bureaucratic routines into agile, learning-based systems.

The implications of this study extend beyond Kerinci. It provides an analytical framework that can be replicated in other Indonesian districts aiming to align local tourism development with national innovation and SDG agendas. The integration of innovation and sustainability policies represents a paradigm shift from traditional resource exploitation toward knowledge-based regional development. In this sense, innovation serves not only as a competitive advantage but also as a mechanism for achieving inclusive and environmentally responsible growth.

Despite its contributions, this research acknowledges certain limitations. The relatively small sample size ($N = 30$) constrains statistical generalization, and the cross-sectional design cannot capture temporal changes in innovation behavior. Future research should employ longitudinal designs and larger samples across multiple regions to enhance external validity. Moreover, incorporating objective indicators such as visitor analytics, investment flows, and employment data would enrich the assessment of competitiveness outcomes. Nevertheless, the methodological rigor, triangulation, and consistency between quantitative and qualitative findings lend strong credibility to the present study's conclusions.

In conclusion, this research demonstrates that innovation-led tourism policy offers a viable and strategic pathway toward sustainable economic recovery in Indonesia's regional contexts. By strengthening innovation ecosystems, improving digital and governance capacities, and embedding sustainability into policy design, destinations like Kerinci can transform structural limitations into opportunities for inclusive growth. Innovation, when institutionalized through coherent policy frameworks and collaborative networks, can move tourism beyond short-term recovery toward long-term resilience and global competitiveness. This transformation not only reinforces Indonesia's position in the international tourism landscape but also advances the nation's commitment to achieving SDG 8 and SDG 9, ensuring that tourism becomes a driver of innovation, prosperity, and sustainability for future generations.

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