



Cross-Sector Partnerships for SDG Achievement: Tourism–Business–AI Collaborations

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Abstract

The achievement of Sustainable Development Goals (SDGs) increasingly depends on **multi-actor collaborations** across sectors. This study explores the **integration of tourism, business, and artificial intelligence (AI) partnerships** as a strategic pathway for SDG advancement. Drawing on cross-sector collaboration theory and public–private partnership literature, the paper develops a **conceptual model** identifying actors, mechanisms, and outcomes that enable SDG impact. Propositions highlight the roles of **shared value creation, governance quality, data exchange, and tiered interventions** in mediating and moderating partnership effectiveness. Implications for policymakers, tourism planners, AI firms, and academic researchers are discussed, emphasizing evidence-based decision-making, ethical technology deployment, and scalable strategies for sustainable development. This research provides a **comprehensive, human-centered framework** for leveraging AI-enhanced cross-sector partnerships to achieve global sustainability objectives.

Keywords: Cross-Sector Collaboration; Tourism; Artificial Intelligence; Sustainable Development Goals; Public–Private Partnerships; Governance; Shared Value Creation; Data-Driven Decision Making

1. Introduction

Sustainable development has become one of the defining challenges of the early twenty-first century, as nations, industries, and societies grapple with a complex web of interlinked economic, environmental, and social issues. The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, underscores this complexity: achieving the Sustainable Development Goals (SDGs) will require coordinated effort across sectors, far beyond traditional policy silos. Indeed, cross-sector partnerships — involving governments, private firms, civil society, and increasingly technology actors — are now widely recognized as indispensable mechanisms for delivering on the SDG promise (Maurrasse, 2018; UN, 2015). These collaborations leverage the distinctive assets, capabilities, and legitimacy of different stakeholders to co-produce public value



that neither sector could achieve alone.

Within this panorama, the tourism sector holds a uniquely potent but under-leveraged role. Tourism is globally significant: as a driver of employment, foreign exchange, and community development, it shapes the economic livelihoods of millions. Simultaneously, tourism exerts pressure on natural and cultural heritage, infrastructure, and local communities, posing risks of environmental degradation, social displacement, and overexploitation. The dual nature of tourism – as both a force for economic development and a source of systemic risk – makes it a fertile ground for ambitious cross-sector initiatives aimed at advancing sustainable development.

Moreover, we are now witnessing the rise of data-driven technologies, especially artificial intelligence (AI), predictive analytics, and big-data platforms, which offer unprecedented opportunities to amplify the impact of multi-stakeholder collaborations. When technology firms, tourism companies, and public institutions join hands, they can harness data flows to do more than optimize operations: they can forecast environmental stress, manage visitor demand, co-design inclusive community investments, and monitor SDG-aligned outcomes in real time. Such tourism–business–AI partnerships could catalyze a new class of SDG interventions – but only if their design, governance, and value creation mechanisms are thoughtfully structured.

However, these partnerships also present formidable challenges. Integrating advanced technical capabilities across sectors involves risks: data privacy, power asymmetries, unclear accountability, and legitimacy concerns in local communities. Without careful institutional design, cross-sector collaborations may replicate existing inequalities or compromise public trust. Theoretical frameworks alone are not enough; we need conceptual models that explain *how* such partnerships can deliver sustainable development impact, and *when* they succeed or fail. This paper addresses this need by developing a rigorous conceptual framework for tourism–business–AI collaborations that aims explicitly to contribute to SDG achievement. We ask: under what conditions can cross-sector partnerships combining tourism firms, business investors, and data/AI providers generate measurable SDG outcomes? What governance, design, and collaboration mechanisms enable value co-creation while safeguarding equity, legitimacy, and accountability? Drawing on cross-sector collaboration theory, public–private partnership research, resource orchestration, and socio-technical governance, we identify actor roles, collaboration mechanisms, enabling conditions, and outcome pathways.

We contribute in three core ways:

1. **Theoretical Synthesis:** We integrate diverse literatures – CSPs (cross-sector partnerships), PPP governance, and AI/data collaborations – into a coherent model that explains how tourism–business–AI partnerships can drive SDG impacts.
2. **Mechanism Design:** We present a typology of collaboration mechanisms (e.g., data sharing, risk sharing, joint monitoring, co-design) and enabling governance conditions (e.g., trust, accountability, standards) that are likely to determine success.
3. **Strategic Propositions and Research Agenda:** We offer testable propositions to guide empirical investigation, as well as practical implications for policymakers, destination managers, technology firms, and civil society actors engaged in sustainable tourism.



Importantly, our perspective aligns with emerging global trends. The 2030 Agenda explicitly highlights multi-stakeholder partnerships (SDG 17, “Partnerships for the Goals”) as a means of implementation. Scholars argue that cross-sector social collaborations are critical to addressing “wicked problems” such as climate change, inequality, and institutional fragmentation (van Tulder & Keen, 2020; Austin & Seitanidi, 2012). This paper builds on that insight, situating AI capability — often treated separately — at the heart of contemporary cross-sector SDG partnerships.

We begin by grounding our analysis in theory: examining cross-sector collaboration frameworks, public–private partnership models, and the resource and governance dimensions of data-enabled partnerships (Section 2). Then, in Section 3 we review existing literature on tourism partnerships, technology collaborations, and cross-sector governance. Section 4 articulates the research gaps. Section 5 presents our conceptual model, mapping actors, mechanisms, governance, and outcomes. Based on that model, in Section 6 we derive propositions that highlight how such partnerships might effectively advance SDGs. Section 7 discusses actionable implications. Finally, Section 8 concludes with reflections and future research priorities.

By exploring the intersection of tourism, business, and AI through a cross-sector lens, this paper seeks to chart a path forward for robust, equitable, and high-impact partnerships — and to show how partnership design matters for sustainable development in the data age.

2. Theoretical Foundations

Understanding how cross-sector partnerships between tourism, business, and AI can contribute to Sustainable Development Goals (SDGs) requires a multidisciplinary theoretical foundation. Such partnerships are not merely cooperative arrangements; they are complex, dynamic ecosystems where resources, knowledge, and capabilities are pooled to achieve outcomes that no single actor could generate independently. The theoretical foundations guiding this paper are drawn from cross-sector collaboration theory, public–private partnership frameworks, and collaborative value creation literature, integrated with insights from technology-mediated governance and socio-technical systems.

2.1 Cross-Sector Collaboration Theory

Cross-sector collaboration theory provides a comprehensive framework for analyzing partnerships that span public, private, and nonprofit domains. Austin and Seitanidi (2012) conceptualize these partnerships as multi-actor arrangements where each partner contributes unique resources, competencies, or legitimacy to co-create social value. Their collaboration continuum distinguishes four types: philanthropic (one-way contributions), transactional (exchange-based interactions), integrative (mutual interdependence and joint value creation), and transformative (systemic impact with structural change).

In the context of tourism–business–AI partnerships, the integrative and transformative stages are most relevant. Integrative partnerships allow tourism firms and AI providers to pool data and knowledge to co-design interventions that improve local socio-economic outcomes. Transformative partnerships, in turn, aim for systemic impact: aligning tourism investments with broader SDG targets such as climate action (SDG 13), decent work and economic growth (SDG 8), and sustainable cities and communities (SDG 11). By embedding these



partnerships within local and global governance frameworks, actors can generate measurable, long-term SDG impact rather than isolated operational gains.

Central to cross-sector collaboration theory is the mechanism of resource complementarity. Each actor brings assets that are not easily substitutable: tourism firms contribute knowledge of local destinations, visitor behavior, and market dynamics; business actors provide capital and operational expertise; AI firms bring computational capabilities, predictive modeling, and data analytics infrastructure. Successful partnerships emerge when these resources are orchestrated in ways that produce more than the sum of individual contributions (Bryson, Crosby, & Stone, 2015). Moreover, collaboration theory emphasizes trust, relational capital, and shared goals. Effective partnerships are built on mutual recognition of objectives, transparency in decision-making, and mechanisms for conflict resolution. AI applications in partnership contexts further complicate relational dynamics: data ownership, algorithmic transparency, and ethical use of AI become central governance concerns (Rahwan et al., 2019). Therefore, cross-sector collaboration theory must be extended to account for technological interdependence and digital trust, which are critical to partnership success in AI-integrated contexts.

2.2 Public–Private Partnership (PPP) Frameworks

Public–private partnerships (PPPs) offer another theoretical lens to understand tourism–business–AI collaborations. PPPs have traditionally been used to deliver public infrastructure, health services, and environmental programs through shared investment and risk allocation between government agencies and private entities (Grimsey & Lewis, 2005). Several principles from PPP theory are directly applicable to cross-sector SDG collaborations:

1. **Shared Risk and Reward:** In PPPs, risk allocation is central. Tourism–AI partnerships often involve significant financial, technological, and reputational risks. Governments and development agencies can absorb systemic or policy risks, while private firms assume operational and technological risks. Risk-sharing mechanisms, such as contractual performance incentives or joint investment vehicles, enhance commitment and accountability (Hodge & Greve, 2007).
2. **Contractual and Relational Governance:** PPP theory distinguishes between formal contracts and informal governance mechanisms. While contracts define deliverables, timelines, and accountability, relational governance – including trust-building, joint problem-solving, and iterative learning – enables adaptive responses to complex, uncertain environments (Klijn & Teisman, 2003). AI-mediated partnerships introduce a third layer: algorithmic governance, which requires monitoring, auditing, and interpretability to ensure ethical and fair deployment (Jobin, Ienca, & Vayena, 2019).
3. **Institutional Legitimacy and Stakeholder Alignment:** PPPs are embedded in socio-political systems; legitimacy comes from alignment with public policy objectives, stakeholder expectations, and societal norms. Tourism–business–AI collaborations similarly must navigate multi-level governance environments, including local communities, municipal authorities, national regulators, and international SDG reporting standards (Bovaird & Löffler, 2003). Legitimate partnerships are more resilient and capable of scaling interventions sustainably.



2.3 Collaborative Value Creation

While collaboration theory explains why partnerships form, and PPP theory explains how formal governance structures operate, collaborative value creation theory explains what outcomes are generated and how value is distributed. This theoretical lens emphasizes that partnerships are most effective when they generate mutual benefits for participating actors and broader social value for the community or sector (Porter & Kramer, 2011).

In the context of tourism–business–AI partnerships, value creation is multidimensional:

1. **Economic Value:** Increased revenues from sustainable tourism models, optimized operations via AI analytics, and job creation in local communities.
2. **Social Value:** Enhanced local skills, inclusion of marginalized communities, improved visitor experiences, and strengthened community engagement.
3. **Environmental Value:** Reduced resource consumption, better waste management, and mitigation of tourism-related environmental degradation through predictive AI systems.
4. **Technological Value:** Knowledge transfer from AI providers, digital infrastructure improvements, and enhanced monitoring of SDG progress.

Collaborative value creation theory also emphasizes feedback loops: continuous learning and adaptation. AI technologies provide real-time monitoring of environmental, social, and economic indicators, enabling partnerships to iteratively adjust interventions to maximize SDG impact. For example, predictive analytics can anticipate tourist flow, allowing local communities to prepare infrastructure without overburdening natural resources (Dahri, Saraih, & Memon, 2025). By integrating data feedback, partnerships can achieve systemic transformation rather than isolated project outputs.

2.4 Technology-Mediated Governance

AI and digital technologies fundamentally transform partnership dynamics by introducing technology-mediated governance. Technology-mediated governance refers to the use of AI, data platforms, and algorithmic decision-making to coordinate actions, monitor performance, and allocate resources in multi-actor collaborations (Moreno et al., 2021). In tourism–business–AI partnerships, this has several implications:

1. **Enhanced Transparency:** Shared data platforms allow partners to track investment flows, project outcomes, and SDG performance indicators, increasing accountability.
2. **Evidence-Based Decision-Making:** AI-powered analytics provide insights into visitor behavior, environmental pressures, and social outcomes, allowing interventions to be tailored and adaptive.
3. **Ethical and Legal Considerations:** Algorithmic decisions must adhere to ethical principles, privacy regulations, and inclusivity norms. Collaborative frameworks must embed safeguards for responsible AI deployment (Floridi et al., 2018).

In essence, technology does not merely support partnerships — it reshapes the rules of collaboration, requiring new governance competencies and adaptive frameworks that account for digital ethics, data sharing, and interoperability among heterogeneous actors.



2.5 Integrated Theoretical Framework

Synthesizing these theories, tourism–business–AI partnerships can be conceptualized as integrative socio-technical collaborations characterized by four key elements:

1. **Actors:** Tourism firms, business investors, AI/data technology providers, governments, NGOs, and local communities.
2. **Resources:** Financial capital, technological capabilities, local knowledge, and social legitimacy.
3. **Mechanisms:** Resource orchestration, risk-sharing contracts, joint governance, collaborative value creation, and AI-enabled monitoring.
4. **Outcomes:** Multi-dimensional value creation contributing to SDGs, including social inclusion, economic resilience, environmental protection, and technological innovation.

This integrated framework allows researchers and practitioners to identify not only *who participates* and *what resources are mobilized*, but also *how collaboration mechanisms operate* and *why these partnerships succeed or fail* in generating sustainable development impact.

2.6 Relevance to SDG Achievement

Finally, linking theory to the SDG agenda underscores the practical significance of this approach. Each SDG represents complex systems challenges that require multi-actor, data-informed interventions:

1. **SDG 8 (Decent Work and Economic Growth):** Tourism partnerships can create jobs while fostering equitable local economic development.
2. **SDG 11 (Sustainable Cities and Communities):** AI-enabled monitoring of tourism impacts can guide urban planning and heritage conservation.
3. **SDG 13 (Climate Action) and SDG 15 (Life on Land):** Partnerships can use predictive analytics to manage environmental footprints and optimize sustainable practices.
4. **SDG 17 (Partnerships for the Goals):** The very structure of tourism–business–AI collaborations operationalizes SDG 17 by demonstrating cross-sector coordination and shared value creation.

3. Literature Review

The literature surrounding cross-sector partnerships, sustainable development, and technology integration is broad and fragmented, encompassing fields such as tourism management, business strategy, public policy, and artificial intelligence. To contextualize the role of tourism–business–AI collaborations in achieving the Sustainable Development Goals (SDGs), this section systematically reviews extant scholarship across three key domains: tourism partnerships for sustainable development, AI and technology-enabled collaborations, and governance mechanisms and risk-sharing in multi-stakeholder arrangements. By synthesizing these streams, the literature review establishes the foundation for identifying gaps and informing the proposed conceptual model.

3.1 Tourism Partnerships for Sustainable Development

Tourism has emerged as a strategic driver of economic growth, employment generation, and cultural preservation globally (UNWTO, 2021). Yet, tourism's potential to advance the SDGs hinges not merely on investment volume but on



the effectiveness and coordination of partnerships. Tourism partnerships can include alliances between private tour operators, public authorities, non-governmental organizations (NGOs), and local communities. These arrangements are crucial for promoting sustainable tourism practices, equitable economic development, and environmental conservation (Bramwell & Lane, 2011).

Collaborative tourism governance has been shown to increase community participation and improve socio-economic outcomes. For example, studies in developing nations indicate that tourism ventures co-managed with local communities enhance social inclusion and economic equity, particularly for marginalized groups (Dahri, Saraih, & Memon, 2025). Similarly, in European destinations, public–private partnerships have been instrumental in heritage site preservation while simultaneously boosting tourism revenues (Hall, 2011). These studies underscore the importance of shared decision-making, trust, and transparency as critical success factors.

Tourism partnerships also contribute directly to multiple SDGs. SDG 8 (Decent Work and Economic Growth) is advanced when tourism enterprises provide quality employment opportunities. SDG 12 (Responsible Consumption and Production) is addressed through eco-certifications and sustainable tourism practices, while SDG 11 (Sustainable Cities and Communities) benefits from investments in infrastructure that balance visitor influx with community needs (UNWTO, 2021). However, much of the existing literature focuses on isolated interventions rather than integrated, multi-actor collaborations that include advanced technological tools like AI for monitoring, prediction, and optimization. Despite these insights, tourism-focused research often overlooks systemic mechanisms that enable cross-sector synergy. While partnerships between tourism operators and NGOs are common, few studies explore how technology firms, especially AI providers, can be embedded to enhance decision-making, scale impacts, and align tourism initiatives with SDG targets. This omission is particularly significant given the increasing emphasis on data-driven governance and evidence-based policy (Bramwell, Higham, Lane, & Miller, 2017).

3.2 AI and Technology-Enabled Collaborations

Artificial Intelligence (AI) is transforming organizational strategies and cross-sector interactions by enabling predictive analytics, automated decision-making, and real-time monitoring (Rahwan et al., 2019). In the context of SDG-oriented partnerships, AI functions as both a capability enhancer and a coordination tool. For tourism, AI applications include visitor flow predictions, sustainability impact assessments, and smart infrastructure planning (Gretzel et al., 2015). AI-driven data analytics can help partners anticipate environmental stressors, optimize resource allocation, and identify socio-economic gaps in local communities (Dahri, Rehman, & Namisango, 2023).

Business–AI collaborations have been extensively studied in sectors such as healthcare, manufacturing, and finance, demonstrating how cross-sector knowledge sharing and technology integration generate shared value (Dahri, Memon, & Syed, 2025). These collaborations often hinge on mechanisms such as data sharing agreements, joint innovation labs, and co-investment in digital infrastructure. Translating these models to tourism can foster evidence-based management of tourism resources, optimize sustainability outcomes, and improve accountability toward SDGs.



AI also enhances risk management and adaptive governance in partnerships. Predictive models can forecast visitor behavior, environmental degradation, or market volatility, allowing partners to implement proactive interventions. For instance, smart tourism destinations in Asia have employed AI to reduce congestion, minimize environmental footprint, and improve local economic benefits (Li, Law, & Rong, 2020). Similarly, AI can help quantify SDG-related outcomes, such as carbon emissions per tourist or socio-economic uplift in local communities, providing the transparency and rigor required for multi-actor accountability (Dahri, Saraih, & Rehman, 2025).

However, literature on integrated tourism–business–AI collaborations remains limited. While AI’s potential for enhancing sustainability is recognized, few studies explicitly address the mechanisms through which tourism enterprises, business actors, and AI providers can jointly co-create SDG impact. This gap is particularly notable in low- and middle-income countries, where tourism’s socio-economic contributions are significant but technology adoption remains uneven (Gretzel et al., 2015).

3.3 Governance Mechanisms and Risk-Sharing in Multi-Stakeholder Partnerships

Effective cross-sector partnerships require robust governance structures capable of aligning diverse interests, allocating resources efficiently, and managing risks (Bryson, Crosby, & Stone, 2015). Governance in tourism–business–AI collaborations is especially complex due to the diversity of actors involved and the emergent nature of technology-mediated interventions.

Formal governance mechanisms include contracts, memoranda of understanding, and joint venture agreements that specify roles, responsibilities, and performance metrics. In PPP frameworks, risk-sharing is formalized through legal and financial instruments, ensuring that both public and private actors commit resources and share the consequences of project outcomes (Grimsey & Lewis, 2005; Hodge & Greve, 2007).

Relational governance, on the other hand, emphasizes trust, transparency, and iterative learning among partners. Evidence suggests that relational governance significantly influences collaboration success in both tourism and business sectors (Klijn & Teisman, 2003). In AI-integrated partnerships, relational governance extends to algorithmic transparency, data ethics, and accountability, creating a triad of formal, relational, and technological governance mechanisms.

Governance quality directly affects SDG achievement. High-quality governance enhances decision-making efficiency, resource mobilization, and outcome monitoring, thereby increasing the likelihood that investments translate into measurable SDG impact. Conversely, weak governance may result in misaligned incentives, underutilized AI capabilities, and poor monitoring of social, economic, or environmental outcomes (Bramwell et al., 2017).

Furthermore, literature on collaborative risk-sharing indicates that partnerships succeed when partners align their risk appetite with expected benefits. For example, AI investments in tourism may entail substantial upfront costs, data privacy risks, and ethical considerations. Multi-actor arrangements that explicitly share these risks—through joint funding, insurance mechanisms, or co-development agreements—tend to exhibit higher sustainability and resilience (Austin & Seitanidi, 2012).



3.4 Integrative Insights and Emerging Themes

A synthesis of the literature identifies several recurring themes:

1. **Multi-actor collaboration is essential for SDG attainment:** Partnerships between tourism, business, and AI providers can unlock synergies that single-sector interventions cannot achieve.
2. **Technology acts as both enabler and governance tool:** AI not only supports operational efficiency but also facilitates monitoring, accountability, and evidence-based decision-making.
3. **Governance quality and relational dynamics are central to partnership success:** Contracts, trust, and shared value creation mechanisms collectively determine whether partnerships deliver meaningful SDG outcomes.
4. **Evidence gaps exist in integrated models:** Most studies examine tourism partnerships, business collaborations, or AI applications in isolation. Few investigate how these three domains intersect to co-create measurable SDG impact.

These insights point to the need for a conceptual model that articulates the actors, mechanisms, and outcomes of tourism–business–AI collaborations in a way that is analytically robust and practically actionable.

3.5 Conceptual Implications for SDG-Focused Tourism Partnerships

The literature suggests that cross-sector partnerships can be strategically designed to enhance SDG contributions by integrating insights from multiple fields:

1. **Tourism expertise** ensures culturally appropriate, economically beneficial, and environmentally sustainable interventions.
2. **Business acumen** provides capital, operational efficiency, and market insights for scaling interventions.
3. **AI capabilities** facilitate data-driven decision-making, real-time monitoring, predictive planning, and adaptive governance.

When these elements converge within well-governed partnerships, the potential for transformative SDG impact increases substantially. Moreover, such partnerships can create feedback loops, where real-time AI data informs policy, investment decisions, and local community engagement, fostering an iterative cycle of improvement.

3.6 Conclusion of Literature Review

In summary, the literature underscores the promise of cross-sector partnerships for SDG achievement but also highlights critical gaps. While tourism, business, and AI each offer unique pathways to sustainable development, integrated frameworks that combine these domains are underdeveloped. Existing studies emphasize operational success, relational governance, and technological innovation separately but rarely in combination. Consequently, there is a pressing need to develop a conceptual model that captures the interactions between tourism firms, business actors, and AI providers, identifies mechanisms of shared value creation, and specifies governance structures that ensure accountability and SDG alignment.

The subsequent sections of this paper address these gaps by proposing a conceptual framework for tourism–business–AI partnerships, followed by

research propositions and practical implications for policymakers, investors, and technology firms.



4. Research Gap

The extant literature emphasizes the individual contributions of tourism, business, and AI toward sustainable development, yet the integration of these domains in cross-sector partnerships for SDG achievement remains markedly underexplored. Despite growing recognition of the SDGs as a universal agenda, research reveals persistent conceptual, operational, and empirical gaps that hinder effective design, governance, and evaluation of tourism–business–AI collaborations. This section synthesizes these gaps across three interconnected dimensions: sectoral integration, partnership mechanisms, and outcome measurement, highlighting areas where scholarly and practical inquiry is most needed.

4.1 Limited Cross-Sector Integration

Current research predominantly investigates tourism, business, and AI applications in isolation rather than as interconnected systems. For example, studies in tourism partnerships largely focus on public–private or community–private collaborations aimed at enhancing local socio-economic benefits and promoting sustainable practices (Bramwell & Lane, 2011; Dahri, Saraih, & Memon, 2025). AI-related studies, by contrast, often examine technology adoption, predictive analytics, and automation in business or healthcare sectors (Rahwan et al., 2019; Dahri, Rehman, & Namisango, 2023), without considering the unique operational and socio-cultural contexts of tourism. Similarly, business literature emphasizes strategic partnerships, resource sharing, and innovation ecosystems but seldom accounts for tourism’s environmental and social externalities (Austin & Seitanidi, 2012).

The consequence of this compartmentalized approach is that synergistic potential remains untapped. Integrating AI into tourism–business partnerships could enable real-time monitoring of SDG-relevant outcomes, predictive modeling for sustainable resource management, and enhanced accountability, yet the literature provides few theoretical or empirical frameworks to guide such integration (Gretzel et al., 2015). Moreover, the lack of holistic frameworks limits policymakers’ and practitioners’ ability to design interventions that simultaneously leverage technological, economic, and environmental dimensions.

4.2 Unclear Partnership Triggers and Governance Models

Another critical gap concerns the mechanisms and triggers that drive successful partnerships. While Austin and Seitanidi’s (2012) collaborative value creation framework identifies stages of partnership development—from philanthropic to transformational—it does not sufficiently address the contextual factors unique to tourism–AI collaborations, such as fluctuating tourist flows, seasonality, and data privacy concerns. Likewise, governance literature emphasizes the importance of contracts, relational governance, and risk-sharing arrangements (Bryson, Crosby, & Stone, 2015; Grimsey & Lewis, 2005), yet these models have rarely been adapted to multi-stakeholder arrangements involving tourism operators, technology providers, NGOs, and government agencies simultaneously.



Particularly, there is limited understanding of how governance quality moderates the effectiveness of partnerships in achieving SDG outcomes. Existing studies focus on organizational or project-level governance, often ignoring cross-sectoral accountability mechanisms, ethical considerations in AI deployment, and multi-level regulatory compliance (Bramwell et al., 2017). The absence of such integrative governance models poses a risk: partnerships may produce operational efficiencies but fail to deliver measurable SDG impact, especially in areas like gender equality (SDG 5), responsible consumption (SDG 12), and sustainable cities (SDG 11).

4.3 Measurement and Accountability Challenges

Perhaps the most profound research gap lies in SDG outcome measurement and accountability. While the UN and other global institutions provide broad SDG targets and indicators, these are often too general to guide tourism–business–AI collaborations (UN, 2020). Tourism impact studies typically emphasize economic metrics, such as revenue generation, employment, and tourist arrivals, but underreport environmental or social outcomes (Hall, 2011). AI-driven evaluations in other sectors often focus on performance efficiency, predictive accuracy, or cost reduction (Rahwan et al., 2019), with minimal attention to multi-dimensional development outcomes.

Consequently, there is no standardized mechanism for linking partnership inputs and activities to measurable SDG results. Questions remain about how to operationalize, monitor, and evaluate contributions of AI-enabled tourism projects to specific SDG targets. For example:

- How does an AI-driven tourism platform contribute to local employment (SDG 8) while minimizing environmental impact (SDG 13)?
- What indicators reliably capture shared value creation in cross-sector collaborations?
- How can partnerships be held accountable for unintended negative outcomes, such as gentrification, digital exclusion, or carbon emissions?

These questions highlight the need for integrated, tiered indicator frameworks that link investments, outputs, outcomes, and impacts in a manner analogous to logic models in development studies (Dahri, Saraih, & Rehman, 2025). Without such frameworks, partnership performance remains opaque, and policy learning is constrained.

4.4 Lack of Empirical Evidence on Causal Mechanisms

While theory suggests that cross-sector partnerships can drive SDG achievement, empirical validation is scarce. Most studies rely on descriptive case analyses, conceptual arguments, or single-sector evaluations (Austin & Seitanidi, 2012; Bramwell & Lane, 2011). There is limited evidence on causal pathways linking collaborative inputs to SDG outcomes, particularly when AI is integrated as an operational and strategic tool. This lack of causal clarity undermines confidence among investors, governments, and NGOs in scaling partnerships or replicating successful models.

Moreover, little is known about conditions under which partnerships succeed or fail. Factors such as cultural alignment, trust among stakeholders, data interoperability, ethical AI deployment, and institutional support are theorized as moderators, yet their empirical influence is under-researched (Dahri,



Memon, & Syed, 2025). Without such evidence, strategic planning for SDG-oriented collaborations remains speculative and fragmented.

4.5 Contextual and Regional Limitations

The majority of studies focus on high-income or Western contexts, leaving developing and emerging economies underrepresented. These regions often face greater challenges in tourism infrastructure, digital literacy, AI adoption, and governance capacity, yet they hold immense potential for SDG impact (UNWTO, 2021). The lack of context-specific research limits transferability of existing models and may overlook unique local constraints, such as limited access to AI tools, regulatory gaps, or social inequalities.

In addition, most research treats SDGs as homogeneous targets, without accounting for the complex interdependencies and trade-offs inherent in real-world projects. For instance, scaling tourism for economic growth may conflict with environmental preservation or social equity unless governance and technology mechanisms are carefully calibrated (Bramwell et al., 2017). Thus, research must not only be multi-sectoral but also multi-dimensional, capturing the nuanced interplay between economic, environmental, and social outcomes.

4.6 Summary of Research Gaps

The cumulative literature indicates that, despite recognition of partnerships as a vehicle for sustainable development, there are persistent gaps that hinder theoretical, empirical, and practical progress:

1. **Integration gap:** Lack of studies combining tourism, business, and AI into a coherent framework for SDG achievement.
2. **Governance gap:** Inadequate understanding of multi-actor governance, risk-sharing, and accountability mechanisms specific to AI-enabled tourism partnerships.
3. **Measurement gap:** Absence of standardized, operationalized indicators linking partnership inputs, activities, and outputs to measurable SDG outcomes.
4. **Causality gap:** Limited empirical evidence on causal pathways and moderators that determine partnership success or failure.
5. **Contextual gap:** Insufficient research on developing regions and the specific challenges they face in implementing cross-sector collaborations.

Addressing these gaps is essential for advancing both theory and practice. It necessitates a conceptual framework that delineates actors, mechanisms, and outcome pathways, integrates technological capabilities, and incorporates robust governance and accountability structures. Such a framework will not only guide scholarly inquiry but also provide policymakers, investors, and practitioners with actionable insights for designing partnerships capable of delivering measurable and sustainable SDG impact.

5. Proposed Conceptual Model

Addressing the research gaps identified in the previous section necessitates a comprehensive conceptual framework that integrates tourism, business, and AI sectors into a coherent structure capable of guiding both empirical investigation and practical implementation for SDG achievement. The proposed model aims to explicate actors, mechanisms, processes, and outcomes, providing a structured pathway from partnership formation to tangible sustainable development outcomes. Drawing on cross-sector collaboration theory (Austin & Seitanidi,



2012), public–private partnership literature (Bryson, Crosby, & Stone, 2015), and sustainable tourism research (Bramwell & Lane, 2011), the model emphasizes multi-actor engagement, collaborative value creation, and measurement of SDG impact.

5.1 Core Actors

The model recognizes that effective SDG-oriented partnerships require diverse stakeholders, each contributing unique resources, capabilities, and expertise. The principal actors are:

1. **Tourism Firms:** Hotels, travel operators, and destination management organizations provide infrastructure, local knowledge, and direct engagement with tourists. They are key for implementing sustainable practices that align with SDGs such as decent work (SDG 8), sustainable cities (SDG 11), and responsible consumption (SDG 12) (Hall, 2011; Dahri, Saraih, & Memon, 2025).
2. **Technology Companies (AI Firms):** These actors contribute advanced analytics, predictive modeling, automation, and digital platforms. Their AI capabilities enable real-time monitoring, predictive risk management, and optimization of resources, which are critical for achieving efficiency, sustainability, and innovation in tourism operations (Rahwan et al., 2019).
3. **Non-Governmental Organizations (NGOs) and Civil Society:** NGOs provide social legitimacy, advocacy, and on-the-ground knowledge of environmental and socio-cultural impacts. They play a critical role in ensuring that partnerships remain inclusive, ethical, and community-centered, directly influencing SDG targets related to gender equality (SDG 5) and reduced inequalities (SDG 10) (Austin & Seitanidi, 2012).
4. **Government and Regulatory Agencies:** Governments create enabling policy frameworks, incentives, and regulatory oversight, which are essential for governance, accountability, and alignment with national and international SDG agendas (Bramwell et al., 2017). They can facilitate cross-sector coordination, provide funding, and enforce compliance with environmental and social standards.

5.2 Partnership Mechanisms

The conceptual model identifies three interlinked mechanisms through which cross-sector collaboration produces SDG-relevant outcomes:

1. **Shared Value Creation:** Partnerships generate economic, social, and environmental value simultaneously. For instance, AI-powered platforms can optimize tourist flows, reducing environmental degradation while maximizing revenue for local communities (Porter & Kramer, 2011; Dahri, Rehman, & Namisango, 2023).
2. **Data and Knowledge Exchange:** Integration of AI enables partners to share and analyze data efficiently, fostering evidence-based decision-making. This mechanism supports monitoring and reporting SDG progress, predictive planning for sustainable resource use, and evaluation of social and environmental impacts (Rahwan et al., 2019; Dahri, Memon, & Syed, 2025).
3. **Risk-Sharing and Governance:** Multi-actor partnerships inherently involve uncertainty, including financial, operational, and reputational risks. Structured governance mechanisms—such as joint steering committees, contractual agreements, and ethical AI oversight—allow equitable



distribution of responsibilities and mitigation of risks (Bryson et al., 2015; Grimsey & Lewis, 2005).

5.3 Tiered Framework for SDG Outcomes

To operationalize the model, a tiered framework is proposed, linking partnership activities to SDG-relevant results:

1. **Tier 1: Inputs**
 - Financial resources, human capital, AI technology, tourism infrastructure, and regulatory support.
 - Example: Investment in AI-based booking systems, local guide training, or smart waste management in destinations.
2. **Tier 2: Activities and Outputs**
 - Collaborative programs, technology deployment, training, infrastructure development, and service delivery.
 - Example: AI-driven energy optimization in hotels, data-informed tourism planning, community-based eco-tourism initiatives.
3. **Tier 3: Outcomes**
 - Short-to-medium-term changes in social, economic, and environmental domains aligned with SDGs.
 - Example: Increased local employment (SDG 8), enhanced energy efficiency (SDG 7), improved community engagement (SDG 11).
4. **Tier 4: Impact**
 - Long-term, systemic transformation reflecting measurable contribution to SDG achievement.
 - Example: Destination-level reduction in carbon footprint (SDG 13), gender-inclusive workforce growth (SDG 5), and resilient, sustainable tourism ecosystems.

This tiered logic model aligns with existing frameworks in development and sustainability studies but uniquely incorporates AI as a cross-cutting enabler for data-driven governance, monitoring, and value creation (Dahri, Saraih, & Rehman, 2025; Rahwan et al., 2019).

5.4 Dynamic Interactions and Feedback Loops

The model recognizes that **partnerships are dynamic**, with continuous feedback loops enabling adaptation, learning, and performance improvement. Data insights from AI systems inform decision-making, which in turn reshapes partnership activities and governance arrangements. This cyclical process ensures that partnerships remain responsive to changing environmental, social, and economic conditions, thereby enhancing resilience and SDG impact (Gretzel et al., 2015; Austin & Seitanidi, 2012).

5.5 Visualization of the Conceptual Model

While a visual diagram is ideal for clarity, the model can be summarized as follows:

Actors	Mechanisms	Tiered SDG Linkages
Tourism Firms, Companies, Governments	AI Shared Value Creation, Knowledge Exchange, Sharing & Governance	Inputs → Activities/Outputs → Outcomes → Impact



This visualization emphasizes multi-actor collaboration, technology-enabled mechanisms, and tiered SDG measurement, forming a comprehensive structure for both scholarly research and practical implementation.

5.6 Contribution of the Proposed Model

The conceptual model contributes to the literature in three major ways:

1. **Integrative Framework:** Bridges tourism, business, and AI sectors, addressing the integration gap in existing research.
2. **Mechanism-Based Understanding:** Explicitly identifies pathways—shared value, data exchange, and risk governance—through which partnerships achieve SDG outcomes.
3. **Operationalized SDG Alignment:** Provides a tiered framework connecting resources, activities, and outputs to measurable SDG impact, facilitating accountability, replication, and policy guidance.

By situating AI as both an operational and strategic enabler, the model transcends traditional partnership frameworks, providing actionable insights for stakeholders seeking measurable contributions to global sustainability targets.

6. Propositions

Based on the conceptual model presented in Section 5, this study proposes a set of testable propositions that explain how cross-sector partnerships involving tourism, business, and AI can effectively contribute to SDG achievement. Each proposition is grounded in established theory, empirical evidence, and practical insights, providing a foundation for both scholarly investigation and policy design.

6.1 Proposition 1: Cross-Sector AI Partnerships Improve SDG Performance

P1: Collaborative engagements between tourism firms, AI technology providers, NGOs, and governments are positively associated with enhanced SDG outcomes. The rationale for this proposition stems from the synergistic potential of multi-actor partnerships. Tourism firms provide access to local infrastructure, market knowledge, and operational channels, while AI companies contribute advanced analytics, predictive modeling, and automation capabilities. NGOs and governments ensure accountability, inclusivity, and alignment with broader SDG agendas (Austin & Seitanidi, 2012; Bryson, Crosby, & Stone, 2015). By integrating these complementary capabilities, partnerships can achieve greater efficiency, scalability, and impact in addressing SDG-related challenges.

For instance, AI-driven predictive analytics can optimize tourist flows, reduce environmental pressure, and enhance local employment opportunities (Dahri, Saraih, & Memon, 2025). Similarly, AI-enabled monitoring systems allow real-time assessment of resource consumption, waste generation, and energy use, contributing directly to SDG 6 (clean water), SDG 7 (affordable and clean energy), and SDG 13 (climate action) (Rahwan et al., 2019). Empirical studies indicate that cross-sector partnerships leveraging technology significantly outperform isolated sector initiatives in achieving sustainability and social development objectives (Bramwell & Lane, 2011).



6.2 Proposition 2: Governance Quality Moderates Partnership Success

P2: The effectiveness of cross-sector AI partnerships in achieving SDG outcomes is contingent upon the quality of governance structures, including transparency, accountability, and ethical oversight.

Governance mechanisms are essential to manage complex interdependencies, risk distribution, and value alignment among diverse partners. High-quality governance ensures clear roles, equitable risk-sharing, and ethical deployment of AI technologies, which are critical for maintaining trust and legitimacy (Bryson et al., 2015; Grimm et al., 2014). Partnerships with robust governance frameworks are more likely to produce sustainable, replicable, and measurable impacts on SDGs, whereas weak governance may lead to resource misallocation, ethical breaches, and failure to achieve intended outcomes (Dahri, Rehman, & Namisango, 2023).

For example, integrating ethical AI guidelines and transparent reporting standards can enhance community trust, reduce reputational risks, and ensure that environmental and social benefits are realized (Rahwan et al., 2019; Dahri, Memon, & Syed, 2025). The moderating effect of governance underscores that mere collaboration is insufficient; success depends on structured decision-making, accountability, and compliance with both legal and normative expectations.

6.3 Proposition 3: Shared Value Creation Mediates the Relationship Between Partnership and SDG Impact

P3: The relationship between cross-sector partnerships and SDG performance is mediated by shared value creation, where economic, social, and environmental benefits are simultaneously realized.

Shared value creation provides a mechanistic explanation for how partnerships translate collaborative efforts into tangible outcomes. By designing initiatives that align business objectives with societal needs, partnerships generate mutually reinforcing benefits, including improved local livelihoods, environmental protection, and innovation adoption (Porter & Kramer, 2011). In tourism contexts, shared value may manifest as sustainable hospitality practices that reduce environmental footprints while increasing profitability through eco-conscious consumer demand (Bramwell et al., 2017). In AI-enabled partnerships, data analytics can optimize operations, enhance customer satisfaction, and track SDG metrics, thereby reinforcing the partnership's contribution to societal and environmental goals (Rahwan et al., 2019; Dahri, Saraih, & Rehman, 2025). This proposition highlights that shared value is the operational bridge linking partnership mechanisms to measurable SDG outcomes.

6.4 Proposition 4: Data and Knowledge Exchange Enhances Adaptive Capacity

P4: Effective data and knowledge exchange among tourism, business, and AI partners enhances the adaptive capacity of partnerships, leading to more resilient and impactful SDG outcomes.

Cross-sector partnerships operate in dynamic environments characterized by changing tourism demand, technological innovation, and evolving sustainability challenges. AI technologies facilitate real-time data collection, predictive analytics, and scenario modeling, which allow partners to adjust strategies proactively (Rahwan et al., 2019; Gretzel et al., 2015). For instance, AI-



driven insights can inform destination management about seasonal tourist flows, carbon emissions, and local community engagement levels, enabling adaptive interventions that enhance SDG-aligned outcomes (Dahri, Saraih, & Memon, 2025). Data and knowledge exchange thus functions as a dynamic feedback mechanism, supporting continuous learning, risk mitigation, and evidence-based decision-making within partnerships (Austin & Seitanidi, 2012).

6.5 Proposition 5: Long-Term Impact is Maximized Through Multi-Tiered Interventions

P5: Partnerships that implement **tiered interventions—linking inputs, activities, outputs, and outcomes—achieve greater long-term SDG impact** compared to ad hoc initiatives.

The proposed tiered model (Section 5) emphasizes that sustainable outcomes require strategic alignment across multiple levels of intervention. Inputs such as investment capital, AI technologies, and human expertise must translate into activities like collaborative projects, infrastructure development, and capacity-building initiatives. These activities produce outputs (e.g., job creation, energy efficiency), which subsequently lead to medium-term outcomes (e.g., social equity, resource sustainability) and long-term impacts (e.g., community resilience, environmental sustainability) (Dahri, Rehman, & Namisango, 2023). Empirical evidence from multi-stakeholder tourism initiatives indicates that structured, sequential interventions are more effective at achieving measurable SDG results than fragmented or one-off projects (Bramwell & Lane, 2011; Hall, 2011). This proposition highlights that partnerships must adopt strategic planning, monitoring, and evaluation frameworks to ensure that short-term activities accumulate into significant long-term transformations.

6.6 Summary of Propositions

Proposition Statement	Rationale / Mechanism
P1 Cross-sector partnerships improve SDG performance	AI Synergistic collaboration leveraging complementary resources and capabilities
P2 Governance moderates partnership success	quality Transparency, accountability, and ethical oversight are critical for trust and legitimacy
P3 Shared value creation mediates partnership → SDG impact	Simultaneous economic, social, and environmental benefits operationalize partnership outcomes
P4 Data and knowledge exchange enhances adaptive capacity	Real-time insights enable learning, risk mitigation, and responsive interventions
P5 Long-term impact is maximized through multi-tiered interventions	Structured linkage between inputs, outputs, outcomes, and impacts ensures sustainable transformation



8. Conclusion

This paper examines the transformative potential of cross-sector partnerships between tourism, business, and AI for achieving SDGs. Through a robust conceptual model, the study identifies key mechanisms—shared value creation, data and knowledge exchange, risk-sharing, and governance quality—that mediate and moderate partnership effectiveness.

The propositions highlight that multi-actor collaboration is essential for maximizing SDG outcomes, yet success is contingent on structured governance, ethical deployment of AI, and strategic alignment across sectors. By linking inputs, outputs, outcomes, and long-term impacts, the paper provides a practical framework for stakeholders, including policymakers, industry leaders, and AI developers.

Overall, the study demonstrates that synergistic, ethically governed, and data-informed partnerships can accelerate SDG achievement, offering actionable guidance for both theory and practice. The implications underscore that sustainable tourism, responsible AI deployment, and cross-sector collaboration are mutually reinforcing pillars of global development.

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Vol. 3 No. 12 (December) (2025)

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