International Journal of Scientific Research and Engineering Development-– Volume 9 Issue 3, May-June 2026

Available at www.ijsred.com

RESEARCH ARTICLE OPEN ACCESS

A Structure for Ancestry Tourism and the Effects of Cooperative Tourism within the Hotel and Resort Industry, Utilizing a Data-Driven Method for Inclusive Heritage and Sustainable Travel

Dr. Muhammed Anas .B, Secretary, KSCTDC Ltd, Trivandrum, Kerala Cum Professor of Practice/Adjunt professor in Tourism and hospitality Management with SSPU & D.Litt.Fellow
m.muhdanas1986@gmail.com
Dr.Sajimon PP Dean PG Dept. St.Aloysius deemed to be university, Managalore. Karnataka
saji@staloysius.edu.in
Dr.N.Subbu Krishna Sastry, Professor CMR University, Bangalore, Karnataka
oviansastry@gmail.com
Dr. V Basil Hans, Research Professor. Srinivas University, Mangalore, Karnataka
vhans2011@gmail.com
Dr.Sini.V Assistant Professor S.N College varkala, Trivandrum ,Kerala
sinibyju6@gmail.com

Abstract

Society is currently undergoing immense transformations, and the tourism industry has increasingly shifted toward niche markets that prioritize personal connection, cultural sustainability, and emotional resonance. Among these, ancestry tourism has emerged as a significant sector where travelers seek to explore their genealogical roots and cultural heritage. Simultaneously, the shared economy has established itself as an alternative to traditional mass tourism, relying on cooperative business models that foster local engagement and resource sharing. This paper explores the intersection of ancestry tourism and the cooperative tourism sector, proposing a novel, data-driven framework that integrates artificial intelligence, semantic web technologies, and sequential pattern mining. By leveraging localized host networks, this framework aims to optimize the delivery of highly personalized heritage experiences while preserving the well-being of cooperative workers. We present a hypothetical evaluation plan to demonstrate how Large Language Models (LLMs) and location-based data can be synthesized to measure service quality and tourist satisfaction in this unique domain. Ultimately, this research bridges the gap between genealogical exploration and sustainable, cooperative tourism management.

Key words: Cooperative, Tourism, Ancestry, Heritage, Hospitality, Resort

Introduction

Consumer habits have experienced dramatic shifts over the last few years, heavily influenced by the digitalization of society and the rise of the shared economy. In the tourism sector, these transformations have enabled the emergence of innovative, cooperative business models based on resource sharing, such as those pioneered by platforms like Airbnb, which have reshaped traditional hospitality paradigms. Within this evolving landscape, ancestry tourism—where individuals travel to destinations connected to their familial heritage—has gained substantial traction. This form of tourism is deeply personal and emotionally charged, requiring a high degree of local knowledge, personalized service, and community cooperation to be truly authentic and impactful.

Despite the growing demand for heritage-based travel, integrating ancestry tourism into cooperative tourism sectors presents complex logistical and operational challenges. The fundamental problem lies in the disconnect between unstructured historical/genealogical data and the localized capabilities of cooperative tourism networks.

Entrepreneurial intentions within the tourism sector are crucial for developing these niche markets, yet transforming this intention into effective causal or effectual behavior requires strategic planning and resource management Furthermore, managing the unique demands of heritage tourists while maintaining the well-being and work-life balance of local cooperative employees remains an under-researched area(Medina-Garrido et al., 2023).

Existing approaches to managing niche tourism in cooperative sectors are insufficient for several reasons. First, traditional semantic data models and generic tourism platforms often fail to capture the highly specific, deeply localized structured data required for ancestry mapping, leaving a gap in how heritage sites are digitally represented Second, conventional service quality metrics are inadequate for evaluating the deeply emotional and nuanced experiences of ancestry tourists, as these standard surveys miss the granular drivers of passenger or tourist satisfaction hidden in unstructured feedbackTo address these specific shortcomings, a specialized framework is necessary.

To bridge these gaps, this paper proposes a comprehensive, technology-enabled framework tailored for ancestry tourism within cooperative networks. The specific contributions of this paper are as follows:

- We propose a multi-layered framework that integrates Location-Based Social Network (LBSN) tracking and semantic web structures to optimize the matching of ancestry tourists with localized cooperative hosts.
- We outline a hypothetical evaluation methodology utilizing Large Language Models to extract and analyze the nuanced drivers of emotional satisfaction from unstructured ancestry tourism reviews.

Related Work-1

The Shared Economy and Cooperative Entrepreneurship

The shared economy has emerged as a robust socio-economic system, heavily influencing the sustainability and operational dynamics of modern tourism(Krouk & Almeida, 2021). Research highlights that entrepreneurship within this sector often relies on both effectual logic—where individuals utilize available resources to create new opportunities—and causal logic involving predictive strategic planning(Martin-Navarro et al., 2023)(Martin-Navarro et al., 2023). While these studies provide strong foundational knowledge on how cooperative tourism models and entrepreneurial intentions form, their primary weakness is a lack of focus on highly specialized, emotionally driven niches like ancestry tourism. Our work builds upon these theories of entrepreneurial propensity by applying them directly to the cooperative hosting networks necessary for genealogical travel.

Artificial Intelligence and Semantic Technologies in Tourism

Artificial Intelligence (AI) has significantly improved system performance across various domains, though its application in tourism has historically lagged compared to other sectors(Duarte et al., 2020). Initiatives like Schema.org have attempted to standardize the publication of structured data to enable intelligent personal agents, showing gradual adoption in the general e-tourism domain(Balcı et al., 2018). However, a major weakness of current semantic approaches is their generic nature, which struggles to annotate the deeply interconnected historical data required for ancestry tourism. By comparing these generic applications to our proposed framework, we demonstrate the necessity of extending semantic vocabularies and AI agents to specifically handle genealogical and localized heritage data.

Service Quality, Accessibility, and Spatial Patterns

Understanding tourist behavior requires sophisticated data mining techniques, such as sequential pattern mining using Location-Based Social Networks (LBSN) to track movement and activity(Talpur & Zhang, 2018). Furthermore, ensuring service quality and accessibility is

paramount, whether through multimodal AI tools designed for Deaf and Hard-of-Hearing (DHH) individuals(Kouremenos & Ntalianis, 2025) or the use of LLMs to decode the reality of service quality from unstructured passenger feedback(Dawoud et al., 2026). The limitation of these existing studies is their isolated application; they operate in silos rather than as a cohesive system. This paper differentiates itself by proposing a unified approach that simultaneously addresses spatial tracking, inclusive accessibility, and LLM-driven service quality analysis within the specific context of ancestry tourism cooperatives.

Related Work-2

The academic literature surrounding this topic can be organized into three distinct categories: Heritage and Genealogy Tourism Dynamics, Cooperative Networks in Destination Management, and Experiential Value in Resort Hospitality. The first category, Heritage and Genealogy Tourism Dynamics, primarily focuses on the psychological motivations, emotional resonance, and identity formation associated with individuals returning to their ancestral homelands. The core idea within this stream of research is that roots tourists are driven by a quest for belonging and existential authenticity, distinguishing them from traditional leisure travelers. The primary strength of this literature is its deep, qualitative understanding of the tourist's internal journey and psychological needs. However, a significant weakness is its general neglect of the supply-side logistics, particularly how large-scale accommodation providers can systematically cater to these deeply individualized needs. In comparison to this category, our work shifts the focus from the psychological motivations of the tourist to the operational and cooperative mechanisms required by the resort sector to fulfill those motivations.

The second category, Cooperative Networks in Destination Management, relies on stakeholder theory to analyze how various actors within a tourism destination collaborate to enhance regional competitiveness. The core idea here is that synergy among local governments, private enterprises, and community organizations generates "cooperative tourism effects" that exceed the sum of individual efforts. The strength of this theoretical approach is its robust macro-level framework for analyzing destination sustainability and resource sharing. Its weakness, however, lies in its broad application, often lacking specific operational guidelines for highly specialized niche markets like ancestry tourism. Our proposed framework builds upon these macro-level theories but distinguishes itself by strictly applying cooperative principles to the micro-level interactions between resort hospitality operations and localized genealogical entities.

The third category, Experiential Value in Resort Hospitality, examines the paradigm shift from standardized service delivery to the co-creation of unique, memorable guest experiences. The core idea is that modern luxury relies less on opulent facilities and more on hyper-personalization, cultural immersion, and transformative learning. The strength of this literature is its strong empirical link between customized experiences and critical business metrics such as guest loyalty, premium pricing, and brand differentiation. Conversely, its weakness is a frequent disregard for the host community, often treating local culture as a mere backdrop for guest satisfaction without considering reciprocal community benefits. Our research bridges this gap by arguing that in the context of ancestry tourism, maximizing experiential value for the guest is intrinsically dependent on generating cooperative, equitable benefits for the local heritage stakeholders who make the experience possible.

Method/Approach -1

To effectively integrate ancestry tourism into cooperative networks, we propose the "Ancestry-Coop Framework," a structured pipeline that synthesizes sequential pattern mining, semantic web annotation, and advanced AI sentiment analysis. The architecture is designed to empower local tourism cooperatives by providing them with actionable insights into heritage tourist behaviors and preferences.

The framework operates through three primary modules. Module 1 focuses on Data Structuring and Spatial Mapping. We utilize an extended

Schema.org vocabulary to annotate local ancestral sites, archival locations, and cooperative accommodations, enhancing their visibility to automated agents(Balcı et al., 2018). Concurrently, this module employs the Prefix-Span algorithm on LBSN data to extract tourist sequential activity patterns, allowing cooperatives to design optimized heritage travel packages based on actual historical movement trends(Talpur & Zhang, 2018). The rationale behind this design choice is that ancestry tourists rarely visit single locations; their journeys are inherently sequential, following the historical paths of their ancestors.

Module 2 focuses on AI-Driven Accessibility and Interaction. We integrate multimodal AI systems to ensure heritage sites are accessible to all demographics, drawing inspiration from resources like the GLaM-Sign dataset to provide sign language accessibility and real-time captioning at cooperative heritage sites(Kouremenos & Ntalianis, 2025). Furthermore, personal AI agents are deployed to assist tourists in cross-referencing their genealogical data with local cooperative offerings, a necessary step to overcome language and historical context barriers(Duarte et al., 2020).

Module 3 involves Service Quality Monitoring and Cooperative Well-being. Using LLMs, this module processes unstructured feedback from tourists to pinpoint specific drivers of satisfaction or dissatisfaction, moving beyond traditional survey metrics(Dawoud et al., 2026). Simultaneously, the system monitors cooperative host engagement, ensuring that the demands of personalized heritage tourism do not negatively impact the work-family life balance and overall well-being of the employees and hosts(Medina-Garrido et al., 2023).

To evaluate the efficacy of the Ancestry-Coop Framework, we propose a hypothetical evaluation plan. We simulate a dataset of 10,000 unstructured reviews and LBSN check-ins from heritage tourists visiting cooperative networks in Southern Europe. First, we will apply a gravity model framework to assess the pull factors of these highly annotated cooperative destinations compared to non-cooperative baselines(Serio et al., 2024). Second, we will utilize a multi-stage LLM pipeline to categorize specific service issues and emotional satisfaction levels from the hypothetical reviews, benchmarking our framework against traditional SERVQUAL metrics to demonstrate superior granularity in identifying operational-perception disconnects.

Method/Approach-2

To bridge the gap between resort hospitality operations and localized ancestry resources, we introduce the Cooperative Ancestry-Resort Integration Framework (CARIF). This framework is designed to transition resorts from passive accommodation providers to active facilitators of genealogical discovery. The core philosophy underpinning CARIF is that authentic ancestry tourism cannot be mass-produced; it requires a highly personalized, networked approach where the resort acts as a central hub connecting the guest with an array of specialized local actors. By formalizing these connections into a structured pipeline, resorts can ensure consistent quality, historical accuracy, and equitable economic distribution.

The CARIF methodology operates through three distinct, sequential modules. Step 1 involves "Stakeholder Mapping and Archival Integration." In this foundational phase, the resort management proactively identifies and establishes formal partnerships with local civil registries, religious institutions, historical societies, and independent genealogical researchers. The key design rationale here is to build a trusted network before the guest arrives, overcoming the bureaucratic and linguistic barriers that typically hinder personal ancestral research. Step 2 focuses on the "Co-creation of Ancestral Experiences." Upon booking, the resort's specialized ancestry concierge collaborates with the guest and the local network to design a bespoke itinerary. This may include private access to archival documents, guided visits to specific ancestral villages, and meetings with local historians. The rationale for this step is to transform raw historical data into a deeply immersive, emotionally resonant narrative tailored to the individual guest.

Step 3 is centered on "Benefit Sharing and Community Reinvestment." For the cooperative network to be sustainable, the resort must implement mechanisms ensuring that the financial influx from ancestry tourists supports local heritage infrastructure. This involves structured revenue-sharing agreements, where a percentage of the premium paid for ancestry packages is directed toward the digitization of local archives, the maintenance of historical sites, or the funding of community history projects. The rationale for this design choice is rooted in sustainable tourism theory; by reinvesting in the local heritage ecosystem, the resort ensures the long-term viability of the very resources upon which its ancestry tourism product relies.

To validate the efficacy of the CARIF model, we propose a comprehensive, mixed-methods evaluation plan utilizing hypothetical datasets and benchmarks.

- **Quantitative Evaluation:** We would establish a control group of resorts offering traditional cultural tours and an experimental group implementing the CARIF model. Key performance indicators (KPIs) would include the premium pricing margin achieved on ancestry packages, year-over-year growth in specialized bookings, and guest retention rates. On the community side, we would measure the quantitative increase in funding received by partnered local archives and the number of historical documents digitized as a direct result of resort cooperation.
- **Qualitative Evaluation:** To assess the depth of the cooperative tourism effects, we would conduct longitudinal, semi-structured interviews with three primary stakeholder groups: the guests, the resort management, and the local community partners. Guest interviews would be benchmarked against a hypothetical "Existential Authenticity Scale" to measure emotional satisfaction and identity reinforcement. Community interviews would assess the perceived fairness of the partnership and the social impact of renewed interest in local heritage, ensuring the evaluation captures both commercial success and community well-being.

Discussion

The practical implications of deploying the Ancestry-Coop Framework are substantial for local economies and cooperative organizations. By equipping local hosts with structured data tools and AI-driven insights, destination management organizations can foster targeted entrepreneurial training, enhancing both causal and effectual propensity among community members(Martin-Navarro et al., 2023). Furthermore, promoting sustainable, cooperative models inherently aligns with ecological transition goals, as cooperative tourists tend to favor eco-labels and environmentally sustainable practices during their travels(Serio et al., 2024).

However, the proposed approach has several limitations and potential failure modes. First, there is a significant risk of data sparsity; rural or underdeveloped regions, which are often the endpoint of ancestry journeys, may lack sufficient LBSN check-in data to generate reliable sequential patterns. Second, the framework heavily relies on the digital literacy of cooperative hosts to maintain updated semantic annotations, which may prove difficult in older or economically marginalized communities. Third, text-based LLMs analyzing service quality might struggle to interpret the complex, culturally specific emotional nuances and colloquialisms associated with ancestral grief or joy, leading to miscategorized sentiment analyses.

Ethical considerations are paramount when dealing with deeply personal heritage and location tracking. The most pressing ethical risk is the potential commodification of indigenous or sensitive familial histories by cooperative platforms seeking to profit from ancestry tourism. Additionally, continuous LBSN tracking and the aggregation of genealogical data pose severe privacy risks; strict data anonymization protocols must be enforced to protect tourists from surveillance or data breaches.

Future work should expand on this foundational framework in at least two directions. First, longitudinal studies should be conducted to evaluate

the long-term impact of ancestry tourism on the organizational commitment and well-being of cooperative employees, measuring whether the emotional labor of hosting heritage seekers exacerbates work-family conflict(Medina-Garrido et al., 2023). Second, future technical developments should focus on integrating Augmented Reality (AR) with the proposed multimodal AI systems to provide immersive, on-site historical reconstructions for tourists, further enhancing the personalized nature of the ancestry travel experience.

The practical implications of deploying the CARIF model within the resort hospitality sector are profound and multifaceted. For resort managers, transitioning to an ancestry-focused cooperative model requires a paradigm shift in human resource training, moving away from traditional concierge duties toward highly specialized historical and genealogical facilitation. Resorts will need to invest in dedicated "Roots Concierges" who possess cross-cultural communication skills, foundational genealogical knowledge, and the ability to navigate local bureaucratic structures. Furthermore, destination marketing organizations (DMOs) can leverage these cooperative resort networks to rebrand their regions, attracting high-yield tourists who stay longer, spend more, and exhibit deeper respect for the host destination compared to standard leisure travelers.

Despite its potential, the integration of ancestry tourism into resort operations is susceptible to several limitations and failure modes.

1. **Data Privacy and Bureaucratic Bottlenecks:** Genealogical research relies heavily on access to municipal and religious birth, death, and marriage records. Stringent international data privacy laws or poorly maintained physical archives can severely delay research, leading to guest frustration and the failure to deliver the promised personalized experience.
2. **Unequal Profit Distribution Generating Resentment:** If resorts capture the vast majority of the economic value while relying on underpaid local historians or underfunded community archives to do the foundational research, the cooperative network will collapse. This imbalance can lead to local hostility, resulting in community gatekeepers actively blocking resort access to vital heritage sites.
3. **Resource Exhaustion at the Local Level:** A sudden influx of roots tourists driven by large resort marketing campaigns can overwhelm small, rural archives and historical societies. Without proper capacity-building and financial support from the resort, the increased foot traffic and research requests can degrade the very historical resources the tourists have come to see.

The deployment of such frameworks also necessitates rigorous attention to ethical considerations and potential risks.

Commodification of Painful Histories:** Ancestry tourism frequently involves uncovering histories of trauma, such as slavery, forced displacement, war, and famine. There is a significant ethical risk that resorts, in their pursuit of packaging an "experience," may sanitize, trivialize, or inappropriately commodify these painful narratives to make them more palatable for a luxury hospitality setting.

2. **Exclusivity and Heritage Elitism:** By packaging localized heritage into high-end resort experiences, there is a danger of creating an exclusive ecosystem where access to communal history becomes a luxury commodity. This risks alienating local populations from their own heritage, as sites and historical experts become monopolized by wealthy international tourists.

To address these limitations and expand the academic boundaries of this topic, several avenues for future work must be pursued.

1. **The Role of Artificial Intelligence in Genealogical Matching:** Future research should investigate how resorts can integrate AI and machine learning algorithms to streamline the initial stages of genealogical research. Analyzing how AI can rapidly cross-reference guest DNA profiles with local digitized historical databases could vastly

reduce bureaucratic bottlenecks and lower the operational costs of ancestry tourism.
2. **Longitudinal Cultural Impact Studies:** There is a critical need for multi-year, longitudinal studies examining the cultural impact of sustained roots tourism on host communities. Future work should measure whether cooperative ancestry tourism networks genuinely foster cross-cultural understanding and community pride, or whether they inadvertently lead to cultural dilution and heritage fatigue over time.

Conclusion

The integration of ancestry tourism into the resort hospitality sector represents a highly promising frontier for experiential travel, provided it is underpinned by robust cooperative tourism effects. This paper has demonstrated that while the demand for profound, identity-driven travel is surging, resorts cannot fulfill this demand through traditional, siloed operational models. The proposed Cooperative Ancestry-Resort Integration Framework (CARIF) establishes a necessary blueprint for forging equitable, multi-layered partnerships between luxury accommodation providers, local historians, and community archives. By structuring these interactions around mutual benefit, co-creation, and community reinvestment, resorts can transcend superficial cultural offerings to deliver deeply authentic ancestral journeys.

Ultimately, the success of ancestry tourism within the hospitality industry hinges on the delicate balance between commercial enterprise and heritage preservation. As the evaluation plan and subsequent discussions have highlighted, the economic potential of this niche is inherently tied to the ethical stewardship of local histories. Moving forward, the resort sector must embrace its role not merely as a provider of leisure, but as an active, responsible participant in the global ecosystem of cultural memory. Through dedicated cooperation and equitable revenue sharing, ancestry tourism can serve as a powerful vehicle for both personal transformation for the guest and sustainable socio-economic development for the host community.

Conclusion

The intersection of ancestry tourism and cooperative tourism sectors presents a unique opportunity to foster sustainable, deeply meaningful travel experiences that benefit both the tourist and the local host community. As the tourism industry recovers from global crises and shifts toward digitalization, the shared economy provides an ideal foundation for facilitating localized heritage exploration(Krouk & Almeida, 2021). However, navigating the logistical, emotional, and data-driven complexities of this niche requires more than generic e-tourism solutions.

This paper introduced the Ancestry-Coop Framework, demonstrating how semantic web structuring, sequential pattern mining, and LLM-driven service analysis can be synthesized to support this emerging sector. While limitations regarding data sparsity and ethical concerns regarding privacy and commodification remain, the proposed hypothetical evaluation illustrates a clear path forward. By prioritizing both the emotional satisfaction of the heritage tourist and the well-being of the cooperative employee, this approach ensures that ancestry tourism can grow sustainably, inclusively, and innovatively in the digital age.

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