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HERITAGE TOURISM SUITABILITY INDEX FOR ANCIENT CIVILIZATIONS USING AN EXPANDED 8A FRAMEWORK

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ABSTRACT

Heritage tourism research has been marked by a divide between infrastructure-led models, which emphasise accessibility and amenities and conservation-oriented approaches, which prioritise authenticity and preservation. This separation has limited the development of integrated frameworks capable of evaluating ancient civilisations as both cultural assets and tourism destinations, often marginalising historically significant yet underdeveloped archaeological landscapes. This study addresses the gap through the Heritage Tourism Suitability Index (HTSI), a composite framework based on eight parameters: Age, Archaeological Attributes, Ancestry, Attraction Potential, Accommodation, Accessibility, Amenities and Legal Framework. Using a standardised weighted scoring system, the model enables consistent and comparative assessment across diverse contexts. Adopting a mixed-methods approach, the study integrates qualitative evaluation with quantitative analysis, applying HTSI and the complementary Heritage Development Suitability Index (HDSI) to relate heritage significance with infrastructure readiness. The framework supports evidence-based policy and promotes balanced, sustainable development of underutilised but promising heritage sites.

Keywords: Heritage Tourism, Archaeological Landscapes, Ancient Civilizations, Sustainable Heritage Management, Composite Evaluation Index, Cultural Heritage Governance

1. INTRODUCTION

Heritage tourism has become one of the most dynamic sectors within the global tourism landscape, drawing increasing attention from both policymakers and scholars. Archaeological sites, historic environments and cultural landscapes not only generate economic value but also function as repositories of collective memory and identity. These spaces represent layered histories of human activity and serve as tangible expressions of civilizational development. Ancient civilizational landscapes—such as those associated with the Nile Valley, Aegean world and Indus-Saraswati region—embody long-term cultural processes reflected in settlement planning, technological advancement and symbolic traditions. Despite their significance, prevailing tourism evaluation frameworks tend to prioritise infrastructure, accessibility and visitor services, often overlooking deeper attributes such as antiquity, archaeological stratification and cultural continuity. As a result, historically rich yet underdeveloped sites remain undervalued in tourism planning systems.

1.1. *Need for the study-The lost Opportunity*

Conventional tourism evaluation frameworks often privilege infrastructure over civilisational depth, leading to the underrepresentation of archaeologically significant but underdeveloped sites, while infrastructure-rich destinations rank higher. This bias shapes policy towards short-term development rather than long-term heritage value.

Conversely, conservation frameworks emphasise authenticity and protection but lack comparative tools for integration with tourism planning. As a result, heritage and tourism operate in parallel, limiting the translation of intangible

values—such as cultural identity and historical memory—into measurable indicators. In response, this study proposes the Heritage Tourism Suitability Index (HTSI), a composite framework integrating chronological depth, archaeological integrity and infrastructure parameters.

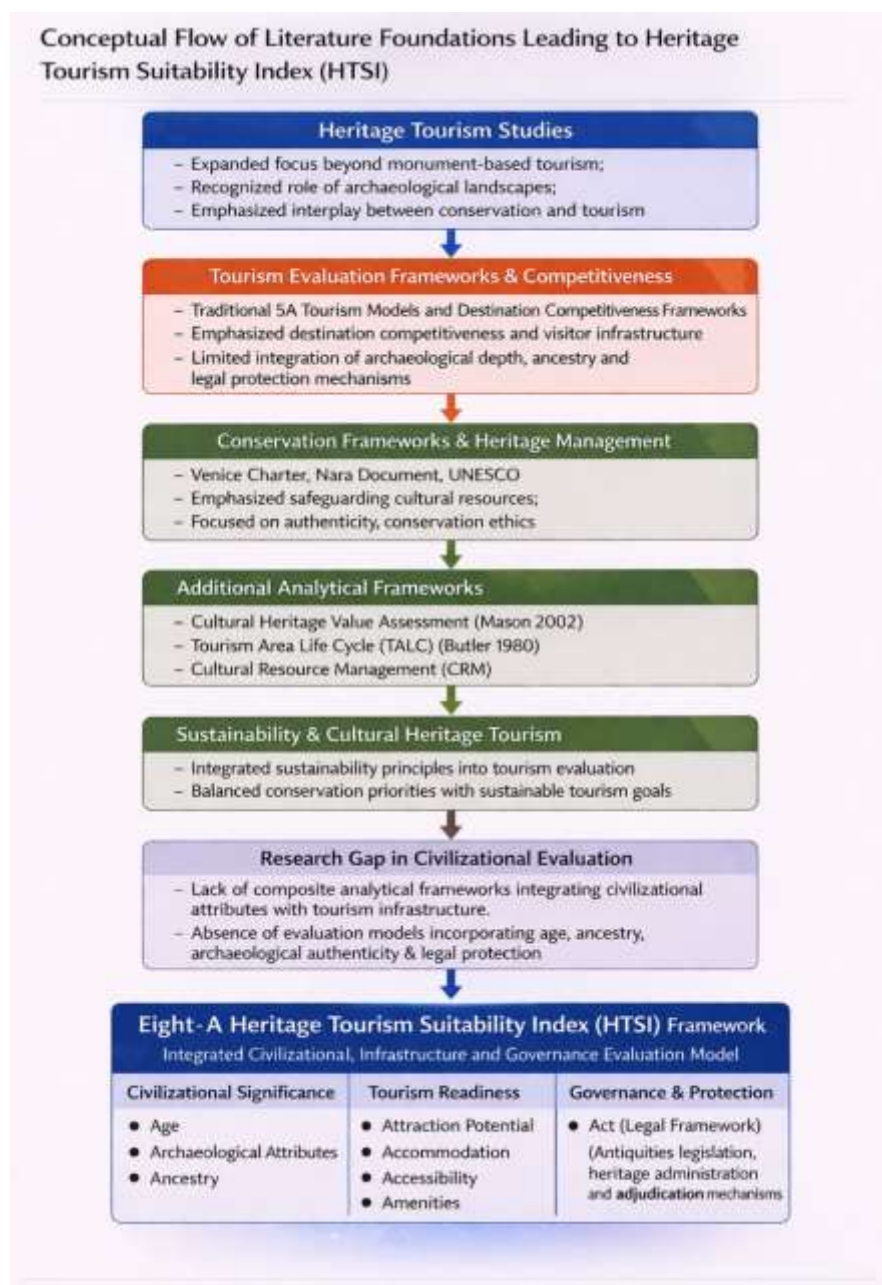
By aligning conservation with tourism planning, it provides a balanced, policy-relevant tool for the sustainable integration of ancient cultural landscapes, addressing long-standing neglect, mitigating lost opportunities, and enabling the strategic realisation of low-hanging fruit.

2. LITERATURE REVIEW

Heritage tourism scholarship has evolved through frameworks such as Cultural Landscape Management, Integrated Heritage Management and Sustainable Heritage Tourism, emphasising conservation, governance and sustainability. However, these remain largely conceptual and policy-oriented, offering limited scope for standardised analytical evaluation.

Consequently, comparative assessment of ancient civilisations within tourism frameworks remains underdeveloped. Existing models seldom incorporate measurable variables such as chronological depth, archaeological authenticity and cultural continuity, while tourism-oriented approaches continue to prioritise infrastructure and services.

This imbalance highlights the need for a structured, multidimensional framework integrating civilisational attributes with tourism indicators—an objective addressed by the present study through a more comprehensive and analytically robust approach.



2.1. Heritage Tourism and the Evolution of Cultural Landscape Interpretation

Heritage tourism has emerged as a significant field within cultural studies and tourism research (Harrison 2018; Timothy 2021), with historic and archaeological landscapes contributing substantially to destination economies. Ashworth and Tunbridge (2000) conceptualised the tourist-historic city, highlighting heritage as dynamic and continually reinterpreted through planning, marketing and cultural narratives.

Timothy and Boyd (2003) emphasised the diversity of heritage tourism and the role of

multiple stakeholders, underscoring the need to balance conservation with tourism development. The field continues to evolve as a multidisciplinary domain addressing cultural landscapes, identity and tourism (Richards 2023; Timothy and Nyaupane 2022). Within this, archaeological tourism is distinct for its focus on chronologically deep sites, requiring evaluation frameworks that capture both temporal depth and cultural complexity.

2.2. Travel and Tourism Competitiveness Index (TTCI)

Tourism planning commonly employs the 5A framework—Attraction, Accessibility, Accommodation, Amenities and Activities—to assess destination competitiveness. While effective for general tourism, it is limited in evaluating ancient civilisations, as it prioritises infrastructure over historical depth, cultural continuity and governance.

To address this gap, the study proposes an expanded Eight-A model, incorporating Age, Archaeological Attributes, Ancestry and Act (Legal Framework). These dimensions capture chronological depth, authenticity, cultural continuity, experiential value and legal protection, forming the Heritage Tourism Suitability Index (HTSI) as a more comprehensive framework integrating civilisation value, infrastructure and governance.

Other models (Dwyer and Kim 2003; Ritchie and Crouch 2003) include resource endowments and policy structures but remain focused on tourism performance and competitiveness. While useful, they often overlook intrinsic cultural value and antiquity, thereby undervaluing historically significant but infrastructure-deficient sites.

2.3. Cultural Heritage Management and Conservation Ethics

In contrast to tourism-oriented frameworks, cultural heritage management approaches prioritise the protection, conservation and interpretation of cultural resources. Foundational charters have shaped these practices. The Venice Charter (1964) established principles of authenticity, historical integrity and respect for original fabric, while the Nara Document on Authenticity (1994) expanded the concept to include cultural context, traditional knowledge and intangible values.

Recent research further emphasises the role of social values and governance in heritage management (Jones and Leech 2023). Similarly, UNESCO's Operational Guidelines for the World Heritage Convention stress authenticity, integrity and long-term conservation in assessing Outstanding Universal Value.

2.4. Authenticity, Restoration and Heritage Representation

Debates on authenticity and restoration have shaped contemporary heritage discourse, highlighting the complexities of preserving and interpreting historical remains. Jokilehto (1999) traces the evolution of conservation philosophy from aesthetic reconstruction towards preserving original material fabric. Pendlebury (2009) further

situates conservation within broader social and political contexts, where heritage sites function as scholarly resources, tourism attractions and symbols of identity.

These overlapping roles often create tensions between conservation and tourism objectives. While restoration may enhance visual appeal, it should not compromise authenticity; conversely, strict preservation may retain integrity but limit public interpretation widely used globally by ICOMOS and UNESCO.

2.5. Cultural Heritage Value Assessment Framework

Widely used by ICOMOS and UNESCO is also the Cultural Heritage Value Assessment framework, which seeks to identify and evaluate the multiple values associated with heritage resources. Mason (2002) emphasized that heritage evaluation must consider historical, social, cultural and economic values when determining conservation priorities and development strategies. Within heritage tourism contexts, value assessment frameworks help determine how different heritage attributes contribute to visitor attraction, educational interpretation and cultural identity. However, these approaches are largely qualitative and often lack standardized metrics that would allow systematic comparison between different archaeological landscapes.

2.6. Tourism Area Life Cycle Framework (TALC)

The Tourism Area Life Cycle (TALC) model by Butler (1980) explains destination evolution through stages from exploration to stagnation and is widely used to analyse tourism growth and visitor impacts. In heritage contexts, it illustrates how archaeological sites develop into tourism destinations. However, it primarily addresses tourism dynamics and does not incorporate key heritage conservation indicators such as authenticity and archaeological integrity.

2.7. Cultural Resource Management Framework

The Cultural Resource Management (CRM) framework is a key approach in heritage studies, emphasizing the identification, documentation and preservation of cultural resources through regulatory systems and conservation planning. Within tourism contexts, CRM frameworks focus on the systematic identification, documentation and protection of heritage assets through regulatory and institutional mechanisms, ensuring

that development activities do not compromise archaeological integrity.

2.8. Intangible Heritage and Civilizational Continuity

Recent scholarship underscores the growing role of intangible heritage in shaping cultural tourism experiences (Makuvaza 2019). The concept of heritage has expanded beyond physical monuments to include cultural practices, as recognised by the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003), which highlights rituals, oral traditions and traditional knowledge. Smith (2006) further critiques the “authorized heritage discourse,” noting the prioritisation of monumental architecture over living traditions.

In the context of ancient civilisations, intangible heritage sustains cultural continuity through practices such as rituals, symbolic cosmologies and sacred landscapes, often persisting beyond physical remains. Recognising these dimensions is essential for a comprehensive understanding of archaeological landscapes.

2.9. Sustainability and Cultural Heritage Tourism

Contemporary heritage tourism scholarship highlights the need to integrate conservation objectives with tourism development (Gravari-Barbas and Jacquot 2022; McKercher and du Cros 2023). Sustainability has become central to planning and evaluation (Su, Wall and Ma 2019), with the Brundtland Report (1987) defining it as meeting present needs without compromising future generations.

Sustainable heritage tourism requires balancing visitor access with conservation, particularly in fragile archaeological contexts. While international bodies recognise the economic value of cultural heritage, they emphasise sustainability-oriented frameworks.

In the context of ancient civilisations, evaluation models must reconcile cultural significance with conservation constraints. However, existing approaches remain either conservation-driven or tourism-focused, lacking integration. The absence of standardised tools combining archaeological value with infrastructure underscores the need for a composite, policy-relevant framework.

2.10 Legal Protection Frameworks and Heritage Governance

An often overlooked dimension in tourism evaluation is the role of legal and institutional frameworks in protecting archaeological heritage. Cultural resources are safeguarded through

legislation, conventions and regulatory systems that govern ownership, excavation and the prevention of illicit trade.

These frameworks function through three key components: legal provisions (Act), implementing institutions (Administration) and enforcement mechanisms (Adjudication). Despite their significance, they are seldom incorporated into tourism assessment models. Yet, the effectiveness of heritage tourism is closely linked to the strength of such systems, as sites lacking legal protection are more vulnerable to degradation. Integrating legal indicators into evaluation frameworks is therefore essential for ensuring secure and sustainable heritage management.

2.11. SWOT Analysis

SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats) is widely used globally, including within heritage and tourism planning contexts. It is a general strategic planning tool, originally developed in management studies, but frequently adapted for heritage site assessment and policy formulation. SWOT is valued for its simplicity and strategic clarity, but it remains qualitative and non-standardised. It is globally used by UNESCO and ICOMOS.

Formulation of HTSI after reviewing Frameworks 2.1 to 2.11

The formulation of the Heritage Tourism Suitability Index (HTSI) emerges from a synthesis of established scholarship on heritage tourism, cultural landscapes, and destination planning. Foundational works by Ashworth and Tunbridge (2000) and Timothy and Boyd (2003) emphasise that heritage is not a static asset but a dynamic construct shaped by interpretation, accessibility and governance. Subsequent studies (Harrison 2018; Timothy 2021) highlight the growing need for integrated frameworks that move beyond isolated assessments of infrastructure or conservation. In parallel, cultural resource management literature underscores the role of legal protection, stakeholder participation and sustainability in safeguarding heritage sites. Drawing from these strands, the HTSI is conceptualised as a multidimensional index that combines civilisational significance (archaeological value, cultural continuity) with tourism-enabling factors (infrastructure, accessibility, visitor management) and regulatory mechanisms (legal frameworks, institutional oversight). The inclusion of an ‘Act’ dimension reflects gaps identified in prior models, where governance and enforcement were often underrepresented. Thus, the index is not arbitrarily constructed but is systematically derived from interdisciplinary literature, translating qualitative

theoretical insights into a structured evaluative tool for archaeological tourism planning.

3. RESEARCH GAP

Despite substantial work in heritage tourism and cultural resource management, existing frameworks remain fragmented in their capacity to evaluate ancient civilisations holistically. Tourism models tend to emphasise infrastructure and competitiveness, while conservation approaches prioritise authenticity and protection, leading to a methodological divide. Key dimensions such as chronological depth, archaeological complexity and cultural continuity are seldom treated as measurable variables.

In addition, the lack of composite index-based models limits the integration of heritage value with tourism readiness, with most studies remaining descriptive or site-specific. This study addresses these limitations by proposing a structured, multidimensional framework that brings together civilisational attributes, infrastructure and governance within a unified analytical system.

4. RESEARCH QUESTIONS

In order to address the methodological gaps identified above, the study is guided by the following research questions:

1. **How can chronological depth and archaeological authenticity be incorporated into measurable heritage tourism evaluation frameworks?**
2. **What analytical structure can effectively integrate civilizational attributes with tourism infrastructure variables within a unified evaluation model?**
3. **How can a composite index framework enable comparative assessment across different ancient civilizations and archaeological landscapes?**
4. **In what ways can sustainability principles be embedded within heritage tourism evaluation systems to ensure that tourism development does not compromise archaeological integrity?**

These research questions collectively seek to explore how heritage tourism evaluation can move beyond infrastructure-focused models toward

frameworks that recognize the deeper temporal and cultural dimensions of ancient civilizations.

5. AIM AND OBJECTIVES

5.1. Aim

The primary aim of this research is **to develop a composite index-based framework for evaluating ancient civilizations within sustainable heritage tourism paradigms.**

The study seeks to bridge the conceptual divide between heritage conservation and tourism development by proposing an analytical model that integrates archaeological significance with tourism infrastructure variables in a strategically grounded and applicable manner.

5.2. Objectives

To achieve this aim, the study pursues the following objectives:

- To critically examine existing heritage tourism evaluation frameworks and identify their conceptual limitations when applied to ancient civilizations.
- To design a composite framework incorporating both civilizational attributes and tourism development indicators.
- To construct a measurable **Heritage Tourism Suitability Index (HTSI)** based on eight core indices.
- To demonstrate how the proposed index can facilitate comparative evaluation across civilizational landscapes.
- To align heritage tourism evaluation with sustainability principles and conservation ethics.

Through these objectives, the research seeks to contribute both theoretically and methodologically to ongoing discussions within heritage studies and tourism planning.

6. METHODOLOGY

The study adopts a **conceptual framework development methodology**, drawing upon interdisciplinary scholarship from heritage studies, tourism economics and cultural heritage management. The research seeks to construct an analytical model capable of guiding future empirical applications.

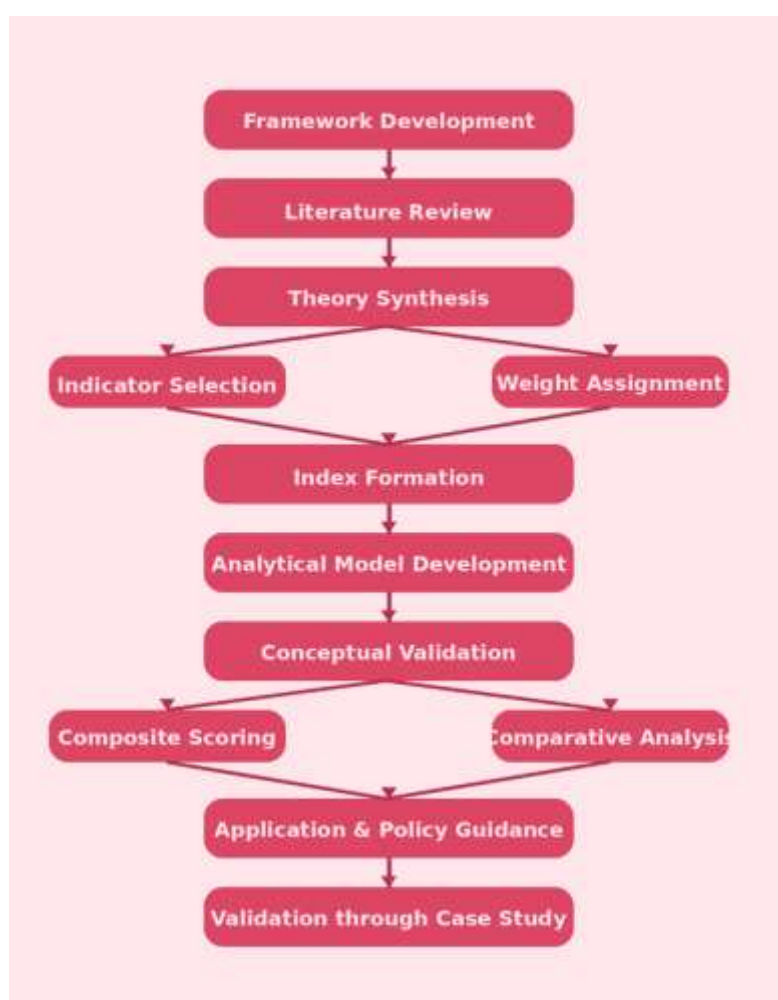
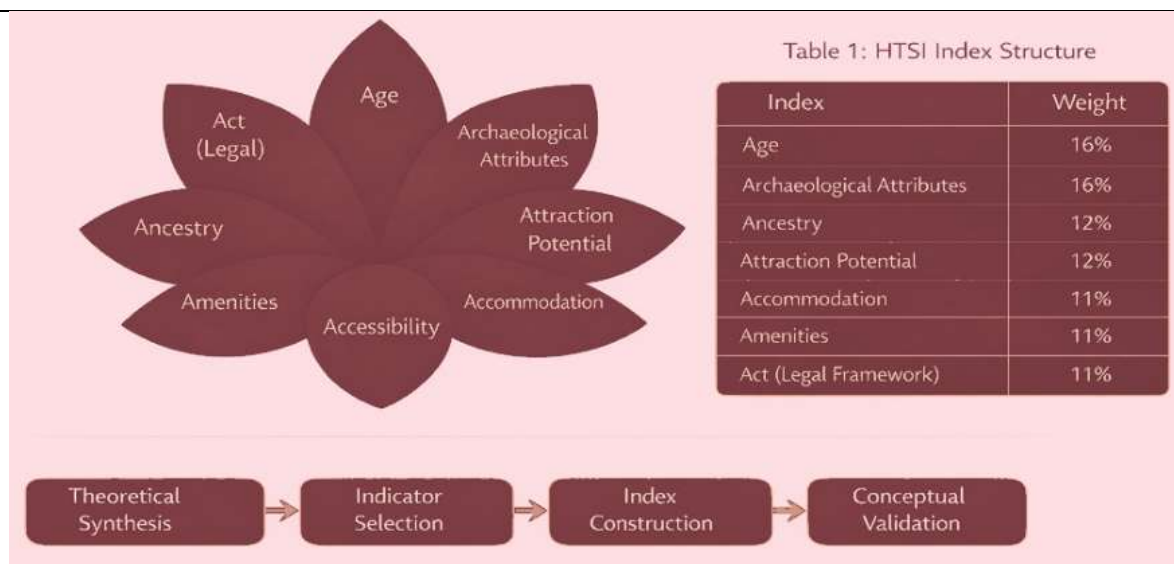


Figure 1. Research Methodology flowchart for HTSI framework development (Self-made)

1. The methodology adopts a framework development approach grounded in interdisciplinary literature from heritage studies, tourism economics and cultural heritage management.

2. It begins with a comprehensive literature review followed by theoretical synthesis to establish conceptual foundations.

3. Indicator selection and weight assignment are undertaken to define and structure the evaluation parameters.

4. These stages lead to index formation and the development of an analytical model.

5. The model is then subjected to conceptual validation to ensure its reliability and applicability.

6. Subsequently, composite scoring and comparative analysis are conducted for systematic site evaluation.

7. The process culminates in application and policy guidance, supporting informed decision-making for sustainable heritage tourism development.

To enhance analytical robustness, the framework is conceptually validated through comparative application across selected civilisational contexts. Although the present study adopts a model-development approach, the HTSI is designed for future empirical testing using expert-based scoring, GIS-supported spatial analysis and multi-criteria decision-making techniques. This positions the framework as both theoretically grounded and practically scalable for policy implementation.

6.2. Index-Based Analytical Framework

Composite indices are widely used in policy analysis and comparative research to integrate multiple indicators into a single analytical measure. By aggregating diverse variables into a structured framework, composite indices allow complex phenomena to be evaluated in a systematic and transparent manner.

Within the context of heritage tourism, an index-based framework offers several advantages. First, it allows multiple dimensions of heritage value—such as chronological depth, archaeological integrity and tourism infrastructure—to be considered simultaneously. Second, it facilitates comparative evaluation across different destinations or cultural landscapes. Third, it provides policymakers with a clear analytical tool for prioritizing development strategies.

The **Heritage Tourism Suitability Index (HTSI)** proposed in this study integrates eight indices representing both civilizational attributes and tourism infrastructure conditions.

Eight-A Heritage Tourism Evaluation Model (HTSI)



Figure 2. Heritage Tourism Suitability Index (HTSI) framework (Self-made)

6.3. Selection of Core Indices

The Heritage Tourism Suitability Index (HTSI) incorporates eight evaluative indices, selected on the basis of three guiding principles:

1. Recognition of civilizational antiquity and continuity
2. Assessment of cultural authenticity and archaeological integrity
3. Evaluation of tourism readiness and visitor infrastructure

Within this framework, the indices are organised into two broad analytical domains

Civilizational Significance

The first three indices—Age, Archaeological Attributes and Ancestry—represent the intrinsic civilizational value of archaeological landscapes.

- Age measures the chronological depth of a site and its historical continuity across successive cultural phases.
- Archaeological Attributes assess the authenticity, integrity and cultural significance embedded in the physical remains of the site.
- Ancestry captures the continuity of cultural memory, ritual traditions and living heritage that link present communities with ancient civilisations.

Together, these indices ensure that the temporal depth, material authenticity and cultural lineage of ancient civilisations are systematically recognised in tourism evaluation models.

Tourism Readiness

The remaining four indices—Attraction Potential, Accommodation, Accessibility and Amenities—represent the tourism infrastructure

conditions that influence visitor engagement and destination viability.

- **Attraction Potential** evaluates the interpretive, educational and experiential value of archaeological landscapes.
- **Accommodation** assesses lodging capacity and hospitality integration within the surrounding region.
- **Accessibility** examines transportation connectivity and digital visibility that enable visitor access.
- **Amenities** measure the availability of visitor services, sanitation and sustainability-oriented infrastructure.

This structure ensures that civilizational merit and tourism readiness are evaluated in a balanced and complementary manner, enabling the HTSI framework to assess both heritage significance and practical tourism viability.

Governance and Legal Protection

The eighth index—Act—represents the legal and institutional framework that safeguards archaeological heritage. This index evaluates the presence of statutory antiquities legislation, administrative heritage governance and adjudication mechanisms that prevent theft, illicit trade and unauthorized excavation of cultural objects.

Justification for Including the Act Index

Conventional tourism evaluation frameworks prioritise infrastructure and visitor services but often overlook the legal and institutional systems that protect cultural heritage. Archaeological sites remain vulnerable to threats such as illicit excavation, unauthorized construction and antiquities trafficking, which can compromise their long-term value.

To address this gap, the HTSI framework introduces Act (Legal Framework) as a key dimension, capturing legislative, administrative and enforcement mechanisms that safeguard heritage resources. By integrating legal protection, the model ensures that heritage tourism evaluation reflects not only cultural significance and infrastructure but also the governance systems essential for sustainable preservation.

6.4. Indicator Operationalisation

Each index within the HTSI framework is operationalised through a set of measurable indicators that capture key dimensions of archaeological heritage and tourism infrastructure.

Age Index

Indicators include: They measure the temporal antiquity and long-term cultural persistence of a civilisation.

- Chronological depth of occupation
- Stratigraphic evidence of cultural layers
- Historical continuity across multiple cultural phases

Archaeological Attributes Index

Indicators include: They evaluate the material and cultural richness of archaeological landscapes.

- Authenticity of archaeological remains
- Integrity of site preservation
- Evidence of symbolic planning traditions
- Diversity of archaeological features and artefacts

Ancestry Index

Indicators include: They recognise the living cultural connections that extend ancient civilisations into contemporary social practice.

- Continuity of ritual traditions
- Cultural lineage connecting past and present communities
- Persistence of symbolic practices and civilisational memory
- Intangible heritage associated with the archaeological landscape

Attraction Potential

Indicators include: These indicators measure the ability of archaeological sites to communicate civilizational narratives to visitors.

- Interpretive facilities and educational resources
- Experiential engagement opportunities
- Storytelling and heritage interpretation capacity

Accommodation

Indicators include: This index reflects the capacity of surrounding regions to support tourism flows.

- Availability and capacity of lodging facilities
- Integration with local hospitality networks
- Proximity of luxury accommodation to heritage sites

Accessibility

Indicators include: They assess the ease with which visitors can reach & engage with heritage sites.

- Transportation connectivity (road, rail, air)
- Proximity to major urban centres
- Digital visibility and online accessibility

Amenities

Indicators include: Measures the quality of visitor support infrastructure at archaeological sites.

- Visitor services (information centres, guides, rest areas)
- Sanitation and public utilities
- Sustainability-oriented infrastructure

Act Index (Legal Protection Framework)

Indicators include: Heritage tourism requires not only infrastructure and archaeological significance but also strong legal safeguards protecting cultural resources from exploitation or loss.

- Existence of antiquities legislation or heritage protection acts
- Administrative governance structures responsible for heritage management
- Adjudication mechanisms addressing disputes, theft or illegal excavation
- Enforcement capacity against illicit trafficking of cultural artefacts

Conceptual Significance of the Eight-A Model

Collectively, these eight indices form an integrated framework that evaluates:

- Civilizational Antiquity (Age)
- Archaeological Authenticity (Archaeological Attributes)
- Cultural Continuity (Ancestry)
- Interpretive Engagement (Attraction Potential)
- Visitor Infrastructure (Accommodation, Accessibility, Amenities)
- Legal Protection and Governance (Act) – evaluating statutory antiquities legislation, heritage administration and adjudication mechanisms that safeguard archaeological resources.

By combining heritage significance with tourism readiness, the HTSI framework demonstrates a balanced and comparative method for assessing the tourism potential of ancient civilisations.

6.5. Standardised Scoring System

In order to ensure comparability across different civilizations and heritage landscapes, the framework employs a **standardised scoring scale ranging from 0 to 5**.

The scoring system is defined as follows:

Score	Interpretation
0	Absence of indicator
1	Very low presence
2	Limited development
3	Moderate development
4	Strong presence
5	Exceptional presence

This scale allows qualitative attributes – such as authenticity or interpretive value – to be translated into comparable evaluation scores.

6.6. Weight Allocation and Composite Index Calculation

Each index is assigned a weight reflecting its relative importance within the overall framework.

Table 1: HTSI Index Structure

Index	Weight
Age	16%
Archaeological Attributes	16%
Ancestry	12%
Attraction Potential	12%
Accommodation	11%
Accessibility	11%
Amenities	11%
Act (Legal Framework)	11%

Civilizational+Governance-attributes≈**44%**

Tourism Infrastructure ≈ **56%**

This maintains methodological balance.

The final **Heritage Tourism Suitability Index (HTSI)** is calculated using the following formula:

$HTSI = \sum (\text{Index Score} \times \text{Assigned Weight})$

The result is a composite score that reflects both the civilizational importance and tourism readiness of a given archaeological landscape.

Rationale for Weight Distribution in HTSI (8A Framework)

The weight distribution within the HTSI is designed to achieve a balanced integration of heritage significance and tourism functionality. The eight indices are organised into two domains: **civilisational value and governance (≈44%)** and **tourism infrastructure and usability (≈56%)**, ensuring that conservation and development are addressed in tandem.

Greater weight is assigned to **Age (16%)** and **Archaeological Attributes (16%)** due to their central role in establishing authenticity, antiquity and evidentiary value. **Ancestry (12%)** captures cultural continuity, while **Attraction Potential (12%)** links heritage significance with visitor engagement.

The remaining indices – **Accommodation, Accessibility, Amenities and Act (Legal Framework)** – are each weighted at **11%**, representing the enabling conditions for tourism development and long-term sustainability. Equal allocation within this group maintains analytical balance.

This distribution, informed by literature review, case studies and expert judgement, enables a composite assessment that systematically integrates **intrinsic heritage value with tourism readiness**, ensuring consistency across diverse archaeological contexts.

7. FRAMEWORK STRUCTURE: THE HERITAGE TOURISM SUITABILITY INDEX (HTSI)

The Heritage Tourism Suitability Index (HTSI) provides a balanced framework that integrates civilisational attributes with tourism infrastructure for the evaluation of archaeological landscapes. It moves beyond infrastructure or conservation centric approaches by adopting a holistic, multidimensional perspective.

A key component is the inclusion of the Act (Legal Framework), which accounts for legislative, administrative and enforcement mechanisms that safeguard heritage resources. The framework is organised into eight interrelated indices, encompassing both civilisational attributes—such as chronological depth and archaeological integrity—and infrastructure factors, including attraction potential, accessibility, accommodation and amenities.

By combining these dimensions, HTSI captures both historical significance and practical tourism conditions, offering a comprehensive and policy-relevant approach to sustainable heritage tourism planning.

7.1 Age Index (16%)

- 0- 1000AD onwards
- 1- 1AD to 999 AD
- 3- 999 BC to 1BC
- 4- 1999BC to 1000 BC
- 5- 2000 BC or before

Chronological depth is a defining attribute of ancient civilisations, reflecting long-term human occupation, cultural evolution and technological development. However, it is rarely treated as a measurable variable in tourism evaluation, where site age is often described but not systematically assessed. The Age Index addresses this gap by integrating chronological depth into the HTSI framework through indicators such as absolute dating, stratigraphy, cultural continuity and comparative antiquity. With a weight of 16 percent, it ensures that civilizational longevity is a central factor in heritage tourism evaluation.

7.2 Archaeological Attributes Index (16%)

- 0-unplanned structures
- 1- Planned structures
- 2- Local material used

3 - monumental only for the royal

4- PH services for public use

5- Planned cities for the benefit of public

While antiquity reflects civilisational depth, the significance of archaeological landscapes is equally shaped by the quality and diversity of material remains. The Archaeological Attributes Index evaluates authenticity, integrity and interpretive richness through indicators such as preservation, architectural diversity, symbolic planning and cosmological alignments. Emphasising authenticity, HTSI distinguishes between conservation, restoration and reconstruction, assigning higher scores to sites with greater original material fabric.

7.3 Ancestry Index (12%)

- 0- no continuity with present civilisation
- 1- partial continuity
- 2- rituals/ oral heritage
- 3- written text continuity
- 4- sustainable practices
- 5- cosmic connections

Beyond chronological depth and archaeological authenticity, ancient civilisations often retain living cultural connections with present societies. The Ancestry Index evaluates this continuity through indicators such as ritual traditions, cultural lineage, symbolic practices and the transmission of collective memory. It recognises archaeological landscapes as part of living cultural systems, incorporating intangible heritage and cultural continuity into heritage tourism assessment.

7.4 Attraction Potential Index (12%)

- 0 - No attraction
- 1 - Limited/local appeal
- 2 - Recognisable heritage value
- 3 - Significant with basic interpretation
- 4 - Strong experiential value
- 5 - Iconic, high tourist draw

Tourism development depends not only on historical value but also on the capacity of sites to engage visitors through interpretation and education. The Attraction Potential Index assesses interpretive and experiential dimensions, including centres, guided tours, digital platforms and immersive experiences. Within HTSI, attraction is defined as knowledge-based engagement, emphasising education and cultural understanding over entertainment.

7.5 Accommodation Index (11%)

- 0 - Non-existent
- 1 - Very Poor
- 2 - Basic
- 3 - Moderate

4 – Good

5 – Excellent

Accommodation infrastructure is crucial for sustaining visitor flows at heritage destinations. The Accommodation Index evaluates the availability and diversity of lodging—such as hotels, heritage properties and community-based stays—thereby addressing practical tourism needs while maintaining a balanced focus on civilisational attributes.

7.6 Accessibility Index (11%)

0 – No access

1 – Difficult access

2 – Road access

3 – Public transport

4 – Well-connected

5 – Multimodal connectivity

Accessibility is central to the practical viability of tourism destinations, as even historically significant sites remain under-visited if poorly connected. The Accessibility Index therefore evaluates both physical connectivity—road, rail and airport proximity—and digital access through online platforms and information systems, recognising the growing role of digital engagement in tourism.

7.7 Amenities Index (11%)

0 - no amenities

1- only drinking water

2 - DW + Toilets He she

3- Signages included

4- Restaurants

5- online ticketing

Visitor amenities constitute the supporting infrastructure essential for safe and sustainable tourism. The Amenities Index evaluates facilities such as sanitation, visitor services, security systems and environmental management, while also incorporating sustainability measures like waste management, monitoring and visitor capacity control.

7.8 Act Index (Legal Framework) – 11%

0- no act

1- existing but obsolete

3- existing n impact full

4- existing impact full but not implemented

5- existing impact full n implemented

The protection of archaeological heritage depends on robust legal and institutional frameworks, as sites remain vulnerable without effective safeguards. The Act Index evaluates legislative provisions, administrative mechanisms and judicial enforcement governing heritage protection, including laws on conservation, regulatory authorities and dispute resolution systems. By integrating legal governance into HTSI, it emphasises that sustainable heritage tourism relies not only on infrastructure and cultural value but also on strong protection systems that preserve authenticity, integrity and long-term significance.

8. VALIDATION

The validation stage ensures the reliability and relevance of the HTSI framework. Computed composite scores are assessed against real-world conditions to verify alignment with the cultural significance and infrastructural status of each site. This process confirms the accuracy of the model in reflecting both heritage value and tourism readiness. Based on validated results, sites are comparatively ranked, enabling a clear assessment of their relative tourism potential. Such ranking enhances the robustness of the framework and provides a practical basis for prioritising conservation and targeted tourism development.

9. RESULTS: ILLUSTRATIVE APPLICATION OF THE HTSI FRAMEWORK

To demonstrate the analytical potential of the HTSI framework, a conceptual application can be illustrated through comparison across four major civilizational landscapes: **Luxor Temple (Egypt)**, **Khajuraho (India)**, **Rakhigarhi (India)** and **Eiffel Tower (Paris)**.

Comparative HTSI (8A Framework) – Ordinal Scale (0–5)				
Criteria (8A's)	Luxor Temple (Egypt)	Khajuraho (India)	Rakhigarhi (India)	Eiffel Tower (Paris)
Age	5	1	5	0
Archaeological Attributes	5	5	4	1
Ancestry (Civilizational Depth)	5	4	5	2
Attraction Potential	5	5	3	5
Accommodation	5	4	1	5
Accessibility	5	4	2	5

Amenities	5	4	1	5
Act (Legal Framework)	5	5	3	5

These civilizations represent distinct cultural traditions with varying levels of tourism infrastructure development.

The comparative HTSI (8A framework) analysis reveals clear distinctions across sites in terms of civilisational depth, infrastructure and governance. Luxor Temple consistently scores the highest across all parameters (5), reflecting its exceptional antiquity, strong archaeological integrity and well-developed tourism ecosystem. Rakhigarhi demonstrates high civilisational significance (Age and Ancestry: 5) but scores lower in infrastructure-related parameters, indicating strong heritage value with limited development. Khajuraho presents a balanced profile with high scores in archaeological attributes and tourism infrastructure, though its lower age score reflects its relatively later historical period. In contrast, the Eiffel Tower, while scoring high in attraction, accessibility and amenities, ranks low in age, archaeological attributes and ancestry, highlighting its strength as a modern tourism icon rather than an ancient civilisational site. Overall, the comparison underscores the effectiveness of

HTSI in differentiating between heritage significance and tourism readiness.

Revised HTSI Scores (Weighted, 0–5 Scale)

- Luxor Temple → 5.00
- Khajuraho Group of Monuments → 3.91
- Rakhigarhi → 3.17
- Eiffel Tower → 3.20

These updated scores reflect the corrected Age values, strengthening the distinction between ancient civilisational sites and modern tourism destinations.

HTSI Formula Used

$$\text{HTSI} = \sum (\text{Index Score} \times \text{Assigned Weight})$$

Interpretation

Luxor Temple ranks highest due to its strong civilisational depth and infrastructure. Khajuraho shows a balanced profile with good heritage and facilities, while the Eiffel Tower scores high in infrastructure but low in civilisational attributes. Rakhigarhi, despite exceptional antiquity, scores lower due to limited infrastructure, highlighting its significant untapped tourism potential.



Figure 3. Rakhigarhi: Old architectural Marvels of Indus Valley (Archaeology Wiki)



Figure 4. Khajuraho (Getty Images)



Figure 5. Luxor Temple



Figure 6. Eiffel Tower (The Good Life France)

11. DISCUSSION

The proposed Heritage Tourism Suitability Index (HTSI) advances heritage tourism evaluation in

several ways. It introduces chronological depth as a measurable parameter, ensuring systematic recognition of civilisational antiquity and integrates archaeological significance with tourism

infrastructure within a unified framework. By assigning substantial weight to civilisational attributes, the model reduces infrastructure bias and preserves the primacy of heritage value. As a composite index, it enables comparative assessment across sites and regions, enhancing its relevance for policy and strategic planning. The inclusion of amenities and environmental considerations further embeds sustainability within tourism development.

However, the framework may be influenced by subjective scoring and data limitations across regions. Future work should focus on empirical validation, field-based datasets and stakeholder-informed weighting to improve robustness and contextual applicability.

12. CONCLUSION

This study presents the Heritage Tourism Suitability Index (HTSI) as a structured, multidimensional framework for evaluating ancient civilisations within contemporary tourism systems. By integrating archaeological significance with infrastructure and governance indicators, it offers a balanced approach that addresses gaps in existing evaluation methods.

The framework operationalises key civilisational attributes—chronological depth, authenticity and cultural continuity—within a measurable system, while incorporating tourism readiness to enhance policy relevance. The inclusion of legal and institutional dimensions further strengthens the model by recognising the role of regulatory frameworks in heritage protection.

Overall, HTSI provides a comprehensive tool for aligning heritage conservation with sustainable tourism development.

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HTSI is superior than present methods of Evaluation

The Heritage Tourism Suitability Index (HTSI) provides a more integrated and objective framework than conventional methods that assess either infrastructure or conservation in isolation. By combining heritage significance, tourism potential and legal frameworks within a standardised weighted system, it enables consistent and comparative evaluation across sites. Its linkage with HDSI further supports targeted interventions, making HTSI a more effective tool for informed decision-making and sustainable heritage tourism development.

13. POLICY IMPLICATIONS

The HTSI framework offers practical insights for policymakers, heritage managers and tourism planners. It enables evidence-based prioritisation by identifying high-value yet underdeveloped sites alongside infrastructure-ready destinations.

By integrating legal frameworks, it ensures that tourism development aligns with heritage protection, reducing risks of degradation. The model also supports regional planning through the identification of heritage corridors and cultural networks, moving beyond isolated site development.

Additionally, by incorporating civilisational continuity and intangible heritage, it promotes culturally sensitive tourism that strengthens local identity and community participation.

Overall, HTSI shifts the focus from short-term competitiveness to sustainable, long-term heritage development.

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