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CULTURAL MAPPING OF TANGIBLE AND INTANGIBLE HERITAGE FOR HISTORIC BUILDINGS

THE CASE OF ANANTHAPURAM KOIL THAMPURAN KOTTARAM

¹Adithyalakshmi Suresh, ²Narasimman R

¹Masters in Architectural Conservation, ²Assistant Professor

¹Department of Architecture,

¹School of Planning and Architecture Vijayawada

Abstract: Cultural heritage is constituted by the dynamic relationship between tangible and intangible dimensions. Historic buildings traditionally functioned as socio-cultural systems where architectural spaces enabled ritual, performance, and collective memory. However, contemporary transformations, functional incompatibility, and deterioration have disrupted this interdependence, leading to cultural discontinuity. This research investigates the relationship between architectural spaces, cultural practices, and community interactions in historic buildings through cultural mapping. By identifying and documenting the interdependence between space, practice, and users, the study develops an analytical understanding of how built heritage supports cultural activities. The approach shifts the focus of conservation studies from viewing historic buildings as static physical objects to understanding them as living cultural system.

Index Terms - Cultural mapping, cultural practices, historic buildings, intangible heritage, tangible heritage

I. INTRODUCTION

Cultural heritage encompasses both tangible and intangible components that together form a holistic cultural ecosystem (Jokilehto, 2008). Tangible heritage refers to physical artifacts such as architecture, monuments, and spatial configurations, while intangible heritage includes rituals, oral traditions, performing arts, and social practices. Historically, these dimensions functioned interdependently. Architecture provided a spatial platform for cultural expression, and cultural practices imbued built forms with meaning and identity. In many historic settlements, palace complexes, temple precincts, and traditional residential typologies were specifically designed to host seasonal festivals, ritual performances, and communal gatherings. Spatial hierarchies, courtyards, platforms, and transitional zones were not merely architectural elements but active enablers of cultural activities (Feilden & Jokilehto).

A representative example of this relationship can be observed in the Ananthapuram Koil Thampuram Palace located in Haripad, Kerala. The palace, associated with the Koil Thampuram lineage of the Travancore royal family, reflects the traditional architectural planning principles of Kerala, including a multi-courtyard residential layout. The structure is believed to date back to around the eighteenth century and follows the *pathinaru kettu* (sixteen-block courtyard) configuration typical of royal residential architecture in the region. Historically, the palace functioned not only as a royal residence but also as a cultural center that supported literary, ritual, and social activities. It is closely associated with prominent

literary figures such as Kerala Varma Valiya Koil Thampuran, often referred to as “Kerala Kalidasa,” who lived and produced significant Malayalam and Sanskrit works within the palace environment. The spatial organization of the palace, comprising courtyards, halls, and transitional spaces, facilitated communal gatherings, performances, and ritual activities that were integral to the socio-cultural life of the community. However, contemporary urbanization, modernization of lifestyles, and lack of maintenance have led to the deterioration of many historic structures including the Ananthapuram Koil Thampuran Palace. Structural decay such as damaged roofs, weakened wooden members, and deteriorating finishes indicates the gradual decline of the building. As these historic buildings become functionally obsolete and incompatible with present-day requirements, communities migrate and construct new buildings that lack traditional spatial typologies. Consequently, cultural practices gradually diminish due to the absence of appropriate architectural platforms that once supported them (Alsalloum & Brown, 2019).

Within this context, the methodological framework of this study focuses on understanding the interdependence between architectural spaces and cultural practices within the Ananthapuram Koil Thampuran Palace through cultural mapping. The first objective is addressed through tangible and intangible cultural mapping, including architectural documentation, measured drawings, condition assessment, ethnographic interviews, and inventories. This approach aligns with cultural mapping methodologies articulated by the UNESCO (2003) (2010 Legacies Now; Bansal & Chhabra, 2023), which emphasize safeguarding living heritage through systematic documentation of practices and community knowledge.

The second objective examines the relationship between spatial conditions and cultural activities through analytical tools such as the Activity-Space Dependency Matrix, Vulnerability Correlation Mapping (VCM), Compatibility Analysis (CA) and composite indicators including the Spatial Viability Score (SVS) and Practice Vitality Index (PVI), which together help evaluate the level of interaction between built spaces and cultural practices (Gayen & Hajela, 2025; Huang et al., 2025). This systems-based perspective reflects conservation theory advocated by the International Council on Monuments and Sites, emphasizing the integration of social and cultural values in heritage studies. Through this analytical approach, the palace is interpreted not merely as a physical structure but as a dynamic socio-spatial system in which architecture, community, and cultural practices are closely interconnected. The research is grounded in the premise that heritage must be understood as a dynamic system rather than a static object (Jokilehto, 2008). The interdependence mode (Figure 1) is structured around three primary components: People, Space, and Practice. Cultural continuity is sustained only when these components operate in synergy. If architectural space deteriorates, cultural practices lose their physical platform. If community participation declines, rituals and traditions cease. If practices vanish, architecture loses meaning and becomes obsolete. Therefore, conservation requires integrated management addressing all three dimensions simultaneously.

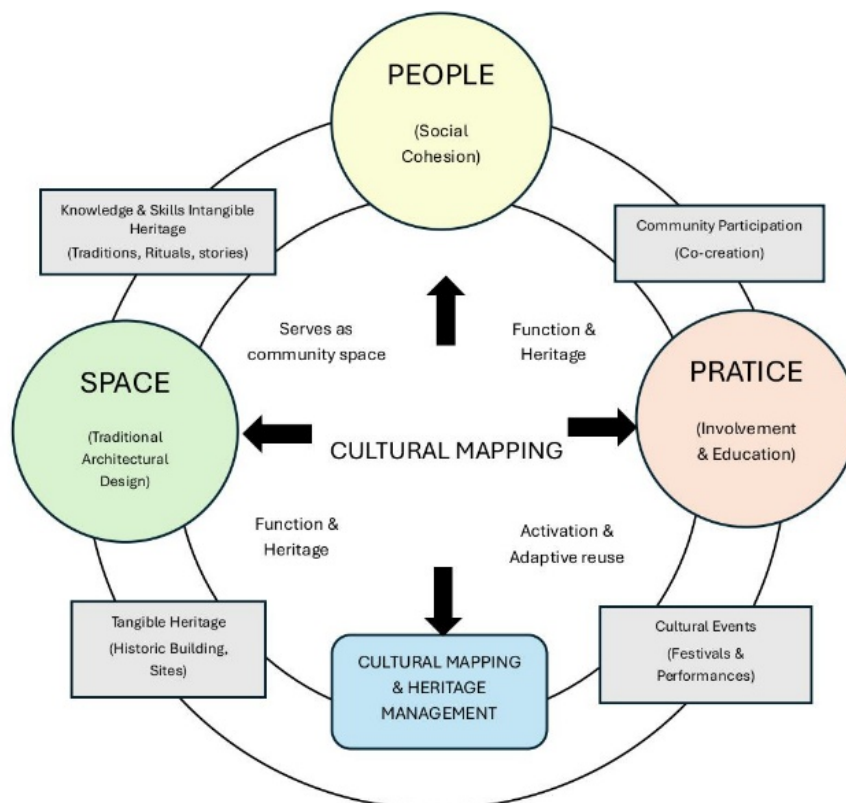


Figure 1 Interdependence Model | Source: Author

II. PHASE I: CULTURAL MAPPING

Cultural mapping is an instrument for collecting, locating, and systematising information concerning the distribution of cultural expressions within a defined territory (Cook & Taylor, 2013). It cannot be understood merely as a neutral technical mechanism, as it is inherently shaped by the objectives of those who commission and conduct it (UNESCO, 2009). These objectives are seldom limited to a purely intrinsic understanding of culture; rather, they often reflect strategic ambitions to enhance the capacity of cultural assets to contribute to broader forms of development whether economic, human, or community development (UNESCO, 2009; Creative City Network of Canada, 2010). In this context, cultural mapping becomes instrumentalised, functioning as a policy-oriented tool that can influence planning, governance, and resource allocation decisions. While such instrumentalization is not inherently problematic, it is essential to critically assess the intentions, frameworks, and power structures that shape the mapping process, as well as the implications of how its outcomes are applied (UNESCO, 2009).

Tangible Element	Linked Intangible Practice	Present Status of Tangible	Status of Intangible Practice	Issue Type	Cause of Decline	Inference (Impact)
Thevarappura (Pooja room)	Daily rituals, lamp lighting, upanayanam	Partially deteriorated	not in use	Physical + Practice decline	Lack of maintenance, reduced occupants and rituals	Ritual continuity weakening due to space degradation and people's participation
Kaavu (sacred grove)	Serpent worship beliefs	Intact	Still believed	No much Issues	NIL	Belief survives until today
Naalukettu (courtyard)	Ritual gatherings,	Structurally intact	not in use	Functional decline	Lifestyle change	Space losing cultural relevance

	thiruvathira performances	but underused				
Chaavadi	public meeting/	Intact	No longer practiced traditionally	Practice loss	Change in social customs	Symbolic space becoming decorative
Anthapura (inner quarters)	Gendered spatial practices	Modified / some are underused	Completely discontinued	Cultural obsolescence	Social change	Loss of traditional social structure
Maternity Room	Gendered spatial practices	underused	No longer practiced traditionally	Functional decline	Lifestyle change	space not adaptable to present day requirements
Ootupura (kitchen)	Ritual cooking, sadya	Partially Altered	Traditional cooking rare (catered food from outside used for festivals)	Hybrid change	Modernization	Partial loss of culinary heritage
Ara-Nira (storage)	Grain storage rituals	unused	Not practiced	Functional obsolescence	Change in economy/storage	Loss of ritual-economic system /space not adaptable to present day requirements
Nadappura (passage connecting the wings of building)	Social interaction/theatre performances	Intact	Reduced use	Behavioral change	Shift to indoor living	Decline in community interaction
Verandah	Social interaction	Modified	Reduced use	Functional change	Shift to indoor living	Decline in community interaction
Kulappura (Bathing ponds)	Purification rituals	unused	Discontinued	Environmental + ritual loss	Neglect, water issues	Ritual ecology disrupted
Timber structure & carvings	Craft knowledge	Deteriorating	Craftsmen unavailable	Skill loss	Lack of artisans	Irreversible loss of traditional knowledge
Padippuras (Gateways)	Main entry /exit	Modified	Change of position for entry	Deterioration	Maintenance/ neglect /change of entrance position	elements being changed according to present day requirements
Machu (Attic)	Storage of rice, seeds, containers	unused	not in use	Functional obsolescence	Change in economy/storage	Loss of ritual-economic system /space not adaptable to present day requirements

Table 1 Table linking Intangible Heritage to corresponding Tangible elements at Ananthapuram Kottaram | Source: Author

Table 1 shows the tangible and corresponding intangible elements mapped on site through prepared inventories inferring there issues and cause of decline.

III. PHASE II: INTERDEPENDENCY ANALYSIS

This phase quantifies the relationship between space and cultural practice using: Activity-Space Dependency Matrix (ASDM), Dependency Strength Index (DSI), Vulnerability Correlation Mapping. These tools reflect a shift toward quantitative heritage assessment models (Gayen & Hajela, 2025). The methodology also incorporates multi-criteria evaluation frameworks similar to the Analytic Hierarchy Process (AHP) used in heritage valuation (Huang et al., 2025).

3.1 Activity – Space Dependency Matrix

Table 2.1: Scoring Criteria (Standardized for Analysis) / Source: Author

Scoring Criteria	1	2	3	4	5
Frequency (F)	Rare	Annual	Seasonal	Monthly	Daily
Participation (P)	Symbolic	Few Individuals	Core Family	Multiple Families	Extended Community
Spatial Condition (SC)	Critical	Severe deterioration	Moderate deterioration	Stable	Excellent
Dependency Strength (DS)	Minimal	Adaptable	Moderately dependent	Highly dependent	Irreplaceable

Dependency Strength Index (DSI)

Formula Used:

$$DSI = \frac{(F+P+DS)}{3}$$

Table 2.2: Activity–Space Dependency Matrix and Dependency Strength Index / Source:

Author

Tangible Element	Intangible Practice	Frequency (F)	Participation (P)	Spatial Condition (SC)	Dependency Strength (DS)	DSI Values
Thevarappura (Pooja room)	Ritual room, lamp lighting, upanayanam	3	3	2	3	4
Kaavu (sacred grove)	Serpent worship beliefs	2	3	4	5	4
Naalukettu (courtyard)	Ritual gatherings, thiruvathira performances	1	1	3	4	3
Chaavadi	public meeting/male quarters	1	5	4	2	4
		5	3	4	2	4

Anthapura (inner quarters)	Gendered spatial practices					
Maternity Room	Gendered spatial practices	3	1	3	1	3
Ootupura (kitchen)	Ritual cooking, sadya	5	4	5	5	6
Ara-Nira (storage)	Grain storage rituals	1	1	2	2	2
Nadappura (passage connecting the wings of building)	Social interaction/theatre performances	5	5	5	5	7
Verandah	Social interaction	5	3	4	3	5
Kulappura (Bathing ponds)	Purification rituals	1	1	1	5	3
Timber structure & carvings	Craft knowledge	1	1	2	5	3
Padippuras (Gateways)	Main entry /exit	5	5	3	5	6
Machu (Attic)	Storage of rice, seeds, containers	3	3	3	2	4

Table 2.2 shows that the Dependency Strength Index (DSI) analysis of Ananthapuram Kottaram reveals a distinct hierarchy in the relationship between tangible spaces and intangible practices. Elements such as the nadappura, ootupura, and padippura exhibit very high DSI values (6–7), indicating that circulation, food-related activities, and entry systems are highly dependent on their spatial configuration and continue to function as core components of everyday life. In contrast, spaces like the thevarappura, kaavu, and verandah show moderate dependency (4–5), where cultural and ritual associations still exist but are weakening due to reduced participation and changing social patterns. Low DSI values observed in elements such as ara-nira, kulappura, and timber craft highlight declining or obsolete practices, where the dependence on space is minimal or disrupted. A critical observation is that some elements with high dependency (such as kulappura and timber structures) have low frequency and participation, indicating a mismatch between inherent importance and current practice, making them highly vulnerable. Overall, the analysis demonstrates that while functional and circulation spaces remain resilient, ritual, ecological, and knowledge-based systems are the most fragile, requiring urgent intervention to restore the lost relationship between space and practice.

3.2 Vulnerability Correlation Mapping (VCM)

Tangible condition was assessed through structural, material, integrity, and maintenance parameters, while intangible condition was evaluated based on frequency, participation, transmission, and cultural relevance. Each parameter was scored on a 1–5 scale and averaged to derive the final value.

Table 3.1 Tangible and Intangible Condition Score Criteria | Source: Author

Tangible Condition Score Criteria						
Source	Good	Minor issues	Moderate deterioration	Severe deterioration	Very poor / ruined	Good
Meaning	1	2	3	4	5	1
Intangible Condition Score Criteria						
Source	Active	Slightly reduced	Occasional	Rare	Almost/extinct	Active
Meaning	1	2	3	4	5	1

Table 3.2 Vulnerability Correlation Mapping (VCM) Table | Source: Author

Tangible Element	Tangible Condition (TC)				Intangible Element	Intangible Condition (IC)				Vulnerability Score (VS)	Correlation Level	Risk Category
	Structural condition	Material condition	Integrity	Maintenance		Frequency	Participation	Transmission	Relevance			
Thevarapura (Pooja room)	4	5	2	5	Ritual room, lamp lighting, upanayam	5	4	4	5	5	Very High	Critical
Kaavu (sacred grove)	1	2	1	2	Serpent worship beliefs	3	1	1	1	4	High	High Risk
Naaluket tu (courtyard)	3	4	2	5	Ritual gatherings, thiruvathira performances	4	4	4	5	4	High	High Risk
Chaavadi	2	2	1	2	public meeting/ male quarters	2	3	4	5	3	Moderate	Medium
Anthapura (inner quarters)	2	3	1	3	Gendered spatial practices	2	2	3	5	3	Moderate	Medium
Maternity Room	1	3	1	5	Gendered spatial	5	5	5	5	4	High	High Risk

					practice s							
Ootupura (kitchen)	1	3	1	2	Ritual cooking, sadya	1	3	1	1	2	Low	Low
	2					2						
Ara-Nira (storage)	1	4	1	5	Grain storage rituals	4	4	5	5	3	Mode rate	Med ium
	3					5						
Nadappu ra (passage connecti ng the wings of building)	1	3	1	3	Social interacti on/theat re perform ances	1	2	2	1	2	Low	Low
	2					2						
Veranda h	1	3	1	3	Social interacti on	3	4	4	2	3	Mode rate	Med ium
	2					3						
Kulappur a (Bathing ponds)	5	5	5	5	Purificat ion rituals	4	5	4	4	5	Very High	Criti cal
	5					4						
Timber structure & carvings	4	5	4	5	Craft knowled ge	4	4	4	4	5	Very High	Criti cal
	5					4						
Padippur as (Gatewa ys)	4	4	4	4	Main entry /exit	2	3	2	1	3	Mode rate	Med ium
	4					2						
Machu (Attic)	4	5	3	4	Storage of rice, seeds, containe rs	4	4	5	5	5	Very High	Criti cal
	4					5						

Table 3.2 shows that the vulnerability assessment of Ananthapuram Kottaram reveals that heritage loss is not uniform but occurs through a complex interplay between physical deterioration and cultural discontinuity. Elements such as the kulappura (pond), timber structures, machu (attic), and thevarappura (pooja room) exhibit very high vulnerability, where both tangible condition and intangible practices are critically degraded, indicating zones of complete heritage breakdown. In contrast, spaces like the naalukettu, kaavu, and maternity room show moderate to high vulnerability, where the physical framework still exists but associated practices are weakening, reflecting a disconnect between space and cultural use. Meanwhile, areas such as the ootupura, nadappura, and verandah demonstrate lower vulnerability, suggesting that everyday functional spaces retain some level of continuity due to adaptive reuse and ongoing social interaction. Overall, the analysis highlights a key pattern: ritual, ecological, and knowledge-based systems are the most fragile, while circulation and adaptive living spaces show greater resilience. This indicates that conservation efforts must prioritize high-risk elements where both space and practice are simultaneously declining and adopt strategies that reintegrate intangible practices with their spatial context, rather than focusing solely on physical restoration.

3.2 Compatibility Analysis (CA)

Compatibility analysis evaluates the degree of alignment between the original function of a space and its current use, thereby assessing whether tangible heritage continues to support its associated intangible practices. It reveals the extent of continuity, adaptation, or disconnection between space and culture, helping to identify areas of living heritage, potential revival, and critical loss.

Table 4.1: Score Criteria for parameters | Source: Author

Score	0	1	2	3	4	5
Functional Match	No function	Function almost lost	weak/altered function	Function adapted	Minor change in function	same function fully retained
Spatial Suitability	Space unusable	Space not suitable	Space poorly supports use	Space usable with changes	Space mostly suitable	Space perfectly supports use
Cultural continuity	No cultural meaning	Meaning almost lost	Meaning weak / fading	Partially retained meaning	Slight reduction in meaning	Cultural meaning fully intact
Activity Level	No activity	Very rare use	Rarely used	Occasionally used	Frequently used	Very active / daily use

Table 4.2: Compatibility Analysis Table | Source: Author

Tangible Element	Intangible Element	Current Use	Compatibility (CI 0-5)				Compatibility Type
			Functional Match	Spatial Suitability	Cultural Continuity	Activity Level	
Thevarappura (Pooja room)	Ritual room, lamp lighting, upanayanam	Storage space	1	2	1	0	Low
			1				
Kaavu (sacred grove)	Serpent worship beliefs	Occasional Use	5	5	5	3	Very High
			5				
Naalukettu (courtyard)	Ritual gatherings, thiruvathira performances	Unused	0	3	3	0	Medium
			2				
Chaavadi	public meeting/male quarters	Entrance porch	0	5	1	4	Medium
			3				
Anthapura (inner quarters)	Gendered spatial practices	Bedrooms / Bathrooms	5	5	2	5	High
			4				
Maternity Room	Gendered spatial practices	Store room	0	2	0	0	Low
			2				
Ootupura (kitchen)	Ritual cooking, sadya	Same use with present day requirements	5	5	5	5	Very High
			5				
Ara-Nira (storage)	Grain storage rituals	Unused/ storage of old artifacts	0	2	1	1	Low
			1				

Nadappura (passage connecting the wings of building)	Social interaction/theatr e performances	Gathering space/ temple processio n	5	5	5	4	Very High
			5				
Verandah	Social interaction	converted to store rooms/ bathrooms	2	3	2	2	Medium
			2				
Kulappura (Bathing ponds)	Purification rituals	Unused	1	2	2	1	Medium
			2				
Timber structure & carvings	Craft knowledge	Limited use	1	4	3	3	Medium
			3				
Padippuras (Gateways)	Main entry /exit	Limited use	1	3	2	4	Medium
			3				
Machu (Attic)	Storage of rice , seeds , containers	Unused	0	2	1	1	Low
			1				

Table 4.2 shows that the compatibility analysis of Ananthapuram Kottaram highlights a significant shift from traditional to altered or inactive uses of space, resulting in varying degrees of disconnection between tangible elements and their associated intangible practices. A majority of spaces such as the pooja room, kaavu, naaluketu, and verandah exhibit low to very low compatibility, indicating that while the physical structures remain, their original cultural functions are either rarely practiced or completely lost. Moderate compatibility is observed in elements like chaavadi and ara-nira, where spaces have been adaptively reused, retaining partial relevance but losing their original cultural meaning. High compatibility is limited to functional and circulation-related spaces such as the ootupura, nadappura, and padippura, where core activities continue in a modified yet active manner, ensuring continuity of use. Overall, the analysis reveals that ritual, gender-based, and ecological spaces are the most incompatible in the present context, while everyday functional spaces demonstrate higher adaptability. This indicates that the primary issue is not just physical degradation, but a progressive loss of cultural alignment between space and practice, emphasizing the need for strategies that reinstate both function and meaning simultaneously.

3.3 Compatibility Analysis (CA) Spatial Viability Score (SVS) & Practice Vitality Index (PVI)

The SVS-PVI assessment table acts as a synthesis framework that evaluates both the physical viability of spaces and the vitality of associated cultural practices, enabling the identification of active heritage, areas with revival potential, and zones of complete loss, thereby guiding targeted conservation and adaptive strategies

Table 5.1: SVS & PVI Assessment Table | Source: Author

Tangible Element	TC	S (Spatial)	IC	F	A	SVS	PVI
Thevarappura (Pooja room)	4	2	5	1	1	2	1
Kaavu (sacred grove)	2	3	3	2	2	3	2

Naalukettu (courtyard)	4	4	4	1	1	3	1
Chaavadi	2	3	4	2	3	3	2
Anthapura	2	2	5	1	3	3	2
Maternity Room	3	2	5	0	1	2	1
Ootupura (kitchen)	2	4	3	4	4	4	4
Ara-Nira	3	3	4	2	2	3	2
Nadappura	2	5	2	4	4	5	4
Verandah	2	3	4	1	2	4	2
Kulappura (pond)	5	1	5	0	0	1	0
Timber structure	5	3	5	2	2	2	2
Padippura (gateways)	4	3	3	4	3	3	3
Machu (attic)	4	2	5	0	0	2	0

Formulas Used:

$$SVS = (6 - TC + S) / 2 \quad (1)$$

$$PVI = (6 - IC + F + A) / 3 \quad (2)$$

Table 5.1 shows that The combined analysis of Spatial Viability Score (SVS) and Practice Vitality Index (PVI) at Ananthapuram Kottaram reveals a critical imbalance between physical survival and cultural continuity. Several elements such as the naalukettu, verandah, anthapura, and kaavu exhibit moderate to high spatial viability but low practice vitality, indicating that while the built environment remains capable of supporting activities, the associated cultural practices have significantly declined. This highlights a key opportunity for revival through reactivation of use rather than physical intervention alone. In contrast, elements like the kulappura, machu, and maternity room show low SVS and low PVI, representing zones of complete heritage collapse, where both space and practice have been lost and may require reinterpretation or adaptive transformation. Meanwhile, the ootupura and nadappura demonstrate high SVS and high PVI, functioning as active cores of living heritage, where both spatial and cultural systems remain intact and should be preserved with minimal intervention. Overall, the analysis indicates that the primary conservation challenge lies not merely in restoring structures, but in reintegrating cultural practices with viable spaces, emphasizing a strategy that prioritizes revival of intangible heritage alongside spatial conservation.

IV. RESULTS

The analytical framework applied to the Ananthapuram Koil Thampuram Kottaram produced findings across three tools ASDM, VCM, and CA, revealing a stratified pattern of heritage vulnerability in which functional spaces remain relatively resilient while ritual, ecological, and knowledge-based systems are undergoing critical breakdown (Jokilehto, 2008). The Spatial Viability Score (SVS) and Practice Vitality Index (PVI) together present a two-dimensional understanding of heritage health, showing that functional spaces such as the nadappura, ootupura, and padippura achieved high scores (3.8–4.5) due to sustained adaptive daily use, whereas ritual spaces including the kulappura, thevarappura, and machu recorded critically low scores (1.2–2.0), indicating a near-total disconnection between built fabric and living cultural practice (Gayen & Hajela, 2025; Alsalloum & Brown, 2019). The Dependency Strength Index (DSI) further classifies spatial relationships into three hierarchical tiers: high dependency (DSI 6–7) in circulation spaces where spatial configuration and use remain strongly interlinked; moderate dependency (DSI 4–5) in spaces such as the thevarappura, kaavu, and verandah

where associations persist mainly in community memory; and collapsed dependency (DSI 1–3) in areas like the ara-nira, kulappura, and timber craft zones, where a significant mismatch between cultural importance and actual usage signals accelerating vulnerability (Bansal & Chhabra, 2023; UNESCO, 2003). Vulnerability Correlation Mapping (VCM) identifies four spatial risk zones within the palace: Zone I (Critical Loss) comprising the kulappura, timber structures, machu, and thevarappura; Zone II (High Vulnerability) including the naalukettu and maternity room; Zone III (Moderate Risk) consisting of the kaavu and chaavadi; and Zone IV (Resilient) covering the ootupura, nadappura, and padippura, collectively demonstrating that the most severe vulnerabilities are concentrated in ritual, gendered, and ecological typologies where community stewardship has diminished (Sherif, Said, & Nagy, 2025; Khaznadar & Baper, 2023). Finally, the Compatibility Analysis shows that out of fourteen spatial elements assessed, only three exhibit high function-space compatibility, four demonstrate moderate compatibility through adaptive reuse, and the remaining seven including the kaavu, thevarappura, kulappura, and maternity room display very low compatibility, indicating that the principal driver of heritage loss is not merely physical deterioration but a progressive decoupling of cultural practices from their spatial contexts, particularly across ritual, gender-based, and ecological domains (Amro, Sukkar, & Abukeshek, 2023; Gayen & Hajela, 2025).

V. DISCUSSION

The findings from the Ananthapuram Koil Thampuram Kottaram substantiate and extend the theoretical proposition that heritage must be understood as a dynamic, relational system rather than a static physical object (Jokilehto, 2008), with the palace functioning as a micro-system where the interdependence of People, Space, and Practice forms the living core of cultural heritage; when any one of these weakens, the system begins to experience entropy, a process clearly evident in the palace's current condition. The pathinaarukettu configuration was not incidental but a spatial codification of social and cosmological order, where courtyards, thresholds, transitional spaces, and hierarchical zoning together constituted the grammar of ritual and social life (Feilden & Jokilehto, 1998), and its gradual erosion through decay, abandonment, and migration signifies not just architectural loss but the disappearance of an epistemological framework that once organized space, time, and community, aligning with broader scholarship on South and Southeast Asian domestic architecture (Khaznadar & Baper, 2023). The literary and artistic legacy associated with Kerala Varma Valiya Koil Thampuram further reinforces the inseparability of tangible and intangible heritage, as the palace served as a living ecosystem for literary production and patronage, and its neglect represents a less visible yet profound form of cultural loss (Bansal & Chhabra, 2023; UNESCO, 2003). Methodologically, the use of composite analytical tools such as ASDM, DSI, VCM, and CA contributes to conservation practice by moving beyond conventional physically oriented assessments toward integrated frameworks that capture both material and immaterial dimensions of heritage, demonstrating that quantitative indices can generate prioritized and actionable conservation insights (Gayen & Hajela, 2025). The AHP-inspired weighting in the Compatibility Analysis further refines this approach by cross-referencing spatial condition with cultural practice vitality, producing a more nuanced two-dimensional evaluation in which structurally sound spaces may still be culturally dormant, an aspect often overlooked in traditional assessments (Huang, Sulaiman, & Harun, 2025; Sherif, Said, & Nagy, 2025). A key theoretical insight is the pattern of selective resilience, where functional and circulation spaces such as the ootupura, nadappura, and padippura continue to survive due to their compatibility with everyday use, supporting findings from adaptive reuse studies that highlight the importance of functional continuity in sustaining heritage (Amro, Sukkar, & Abukeshek, 2023), while conversely, spaces like the kaavu, kulappura, and thevarappura despite holding dense cosmological and ecological significance are increasingly vulnerable due to declining community engagement, reflecting a mismatch between cultural importance and practical neglect that threatens the integrity of the entire system (Alsalloum & Brown, 2019; Creative City Network of Canada, 2010). Ultimately, the study demonstrates that physical restoration alone cannot prevent heritage loss, as a conserved yet culturally inactive palace risks becoming a static "museum object," lacking lived meaning; consistent with the UNESCO 2003 Convention, the findings emphasize that community participation is central to sustainable conservation, showing empirically that declining community engagement directly correlates with reduced cultural vitality, and therefore, the revival of intangible practices alongside the restoration of community ownership particularly involving the Koil Thampuram lineage and local residents of Haripad is as critical as any architectural intervention in ensuring the long-term continuity of the site.

VI. CONCLUSION

This research examines the Ananthapuram Koil Thampuram Kottaram as a living cultural system using an integrated cultural mapping and interdependency framework, revealing that heritage assessment must move beyond physical surveys to include the socio-cultural dynamics shaping continuity (Jokilehto, 2008; Feilden & Jokilehto, 1998). The study finds that heritage loss is driven less by structural decay and more by cultural discontinuity the gradual detachment of intangible practices from their spatial contexts with tools like the Activity–Space Dependency Matrix, Vulnerability Correlation Mapping, and Compatibility Analysis highlighting the heightened vulnerability of ritual, ecological, and knowledge-based spaces due to both physical neglect and cultural abandonment (Gayen & Hajela, 2025). In contrast, functional and circulation spaces demonstrate resilience through adaptive reuse and continued daily use, suggesting that conservation strategies must adopt differentiated, context-specific interventions rather than uniform approaches (Amro, Sukkar, & Abukeshek, 2023; Khaznadar & Baper, 2023). Methodologically, the study proposes a replicable framework integrating SVS, PVI, DSI, and CA indices, offering a transferable model for assessing heritage in similar contexts, and ultimately emphasizes that conservation must extend beyond material integrity to sustain the cultural practices that give meaning to build heritage (Bansal & Chhabra, 2023; Huang et al., 2025; UNESCO, 2003; UNESCO, 2009).

VII. THE WAY FORWARD

The findings of this study outline evidence-based directions for conserving, managing, and revitalizing the Ananthapuram Koil Thampuram Kottaram across structural, cultural, institutional, and monitoring domains. Physical interventions should be phased according to vulnerability, with critically threatened elements like timber structures, kulappura, machu, and thevarappura requiring immediate stabilization using traditional, reversible methods, while spaces such as the naalukettu need medium-term repairs to restore usability and support cultural activities (Feilden & Jokilehto, 1998; Gayen & Hajela, 2025). Equally urgent is the documentation and revival of intangible heritage, including rituals, oral histories, and craft practices, through ethnographic recording, digital archives, and community-led programmes, with initiatives like kaavu restoration and festival programming helping re-establish cultural continuity and ecological value (UNESCO, 2009; Creative City Network of Canada, 2010). Adaptive reuse strategies should be introduced for spaces like the chaavadi and verandah, ensuring new functions remain culturally aligned and are validated through community participation to maintain authenticity and social ownership (Amro, Sukkar, & Abukeshek, 2023; Khaznadar & Baper, 2023). At the institutional level, formal recognition, heritage listing, and the development of a comprehensive management plan are essential, alongside engagement with national and international bodies and the establishment of community governance mechanisms to ensure inclusive and sustainable conservation (UNESCO, 2003; Sherif, Said, & Nagy, 2025). Finally, the study proposes a long-term monitoring framework using indices like SVS, PVI, DSI, and CA to track heritage condition over time, supported by further research and participatory approaches to strengthen both policy relevance and cultural accuracy, ultimately emphasizing that effective conservation must integrate physical restoration with the revival of living cultural practices.

VIII. REFERENCES

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