PRESERVING INDIA'S ARCHITECTURAL AND CULTURAL HERITAGE: INTEGRATING INDIAN KNOWLEDGE SYSTEMS WITH LIBRARIES AND REPOSITORIES

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Abstract :

India's cultural heritage embodies a rich tapestry of tangible and intangible assets, encompassing architectural traditions, manuscripts, oral histories, and philosophical texts that collectively represent the civilizational foundation of the subcontinent. Libraries and repositories have historically served as crucial custodians in the preservation and dissemination of this heritage. This paper investigates the intersection of Indian Knowledge Systems (IKS) with contemporary library and repository practices to enhance the preservation of traditional architectural knowledge. The study critically evaluates both global and Indian architectural repositories, with particular emphasis on digitization initiatives such as the National Digital Library of India (NDLI) and the National Mission for Manuscripts (NMM), alongside efforts by institutions including IGNCA and INTACH. Key challenges explored include physical degradation of materials, digital obsolescence, and disparities in access. The paper further discusses emergent solutions comprising AI-enabled metadata tagging, cloud computing infrastructures, and community-driven archival models. Using Maharashtra's architectural heritage as a focal case study, the research advocates for an interdisciplinary, culturally attuned, and participatory framework to develop structured digital repositories that effectively integrate oral traditions with codified knowledge. Strategic alignment with overarching policy frameworks, notably the National Education Policy 2020, and adherence to principles of ethical Conservations are highlighted. This integrated approach reimagines repositories as dynamic repositories of cultural continuity that facilitate sustainable architectural innovation, enrich educational endeavors, and promote inclusive heritage preservation.

Keywords: Indian Knowledge Systems, architectural repositories, cultural heritage, digitization, libraries, Maharashtra, traditional knowledge, NEP 2020

Introduction :

India's architectural and cultural legacy stands as one of the world's most diverse and enriched heritages. The preservation of this legacy is a multi-faceted challenge involving

tangible records such as manuscripts and buildings and intangible assets like oral traditions and ritual knowledge. Indian Knowledge Systems (IKS), as embodied in ancient texts like the Purāṇas, Vaastu Shastra, and classical treatises, provide a unique epistemological foundation for understanding the interplay between environment, society, and architecture (Kumara 2025). These systems emphasize contextual design, sustainable material usage, symbolic meaning, and the interconnection of the terrestrial and transcendental. The rise of digital technologies and national initiatives, notably the National Digital Library of India and the National Mission for Manuscripts, offers unprecedented possibilities to preserve and disseminate these traditional knowledge forms. However, the fragmented nature of Indian repositories, lack of standardization, and socio-political challenges hinder their full potential. This paper critically analyzes the integrative role of traditional Indian knowledge frameworks and modern repositories in preserving architectural heritage, with special attention to policy implications, technical innovations, and community engagement.

Historical Background of Indian Libraries and Repositories :

India's repositories date back to ancient universities such as Nalanda and Vikramashila, where palm-leaf manuscripts were preserved and transmitted orally (Kumar, 2019). Temple-based libraries and monastic institutions functioned as custodians of not only religious texts but also architectural treatises and construction manuals. Medieval and colonial periods witnessed expanded cataloguing efforts through institutions like the Sarasvati Mahal Library and the Asiatic Society, although often overshadowed by Eurocentric categorizations (Chandra, 2004; Gupta, 2017).Post-independence, institutions such as IGNCA and Bhandarkar Oriental Research Institute emerged to synthesize traditional scholarship with digitization initiatives, setting new benchmarks for heritage preservation.

Indian Knowledge Systems and Architectural Heritage :

The Purāṇas, Agni Purāṇa, and Matsya Purāṇa function as encyclopedic repositories detailing sacred architecture, site planning, and regional stylistic evolution in alignment with spiritual principles (Kumara et al., 2025). IKS transcends purely technical architecture by integrating cosmology, ritual, and cultural symbolism, presenting architecture as a living dhārmic yajña rather than a mere construction.Understanding architecture through IKS requires embracing dynamic knowledge transmission methods—both codified texts and oral traditions—and recognizing the socio-ecological context in which structures exist.

Global and Indian Architectural Repositories :

Globally, platforms like Archnet and ArchDaily illustrate the evolution of digital repositories emphasizing multidisciplinary access, metadata standards, and research interoperability (Salama, 2007; Chen,2021). India's repositories, including Shodhganga, NDLI, and NMM, cover vast academic outputs but remain fragmented, limiting focused architectural heritage preservation (Jain, 2017; OpenDOAR, 2019). Regional initiatives by IGNCA and INTACH emphasize digitizing intangible cultural heritage and vernacular

architecture, yet they encounter ongoing challenges related to long-term preservation and system compatibility.

Challenges in Preservation and Digitization Preserving India's architectural and cultural heritage :

Preserving India's architectural and cultural heritage presents a congregation of complex and evolving challenges that require both traditional expertise and state-of-the-art approaches. One of the most persistent issues is the physical decay of manuscripts, artifacts, and historic structures. Traditional materials such as palm-leaf, birch bark, wood, and unreinforced masonry are particularly vulnerable to damage from climatic factors, pests, and pollution. The magnitude of the country's heritage assets, many housed in environments lacking formal conservation infrastructure, means that significant portions of the nation's legacy are at risk of irreversible loss unless advanced conservation science and preventive care are widely implemented (Joshi, 2019; Nair, 2020).

Alongside physical threats, digital obsolescence presents a growing risk to the long-term accessibility of digitized heritage. As more resources migrate into digital repositories, divergent file formats, evolving software, and inconsistencies in metadata standards threaten enduring usability. Without robust archival protocols and standardized digital ecosystems, large swathes of valuable content may become inaccessible to future generations (Joshi, 2019; Ministry of Culture, 2021). Moreover, India's digital heritage landscape is often marked by siloed projects lacking interoperability, which hampers knowledge discovery and collaborative research (OpenDOAR, 2019; PIB, 2025).

Access inequality continues to be a major obstacle to cultural inclusion, with significant disparities between urban and rural populations and among different linguistic and regional groups. While initiatives like the National Digital Library of India and the National Mission for Manuscripts have advanced digital resource accessibility, many communities still lag due to limited infrastructure, digital skills, and localized content (Ministry of Culture, 2021; Sharma, 2018; PIB, 2025). The scarcity of multilingual platforms and inadequate representation of regional scripts and oral traditions further hinder equal participation and appreciation of India's cultural heritage (OpenDOAR, 2019).

Funding shortages and inconsistent policy support worsen these challenges. Despite the recognized social, cultural, and economic importance of heritage preservation, financial resources for conservation and digitization are often insufficient, resulting in underfunded institutions, poor documentation, and interrupted preservation projects (Gupta, 2017; PIB, 2025).In response, emerging technologies are offering promising solutions. Artificial intelligence is used for advanced metadata tagging, optical character recognition, and automated cataloguing in multiple languages and scripts (ASI, 2022; PIB, 2025). Cloud infrastructures provide robust, distributed storage solutions to prevent data loss and improve access (PIB, 2025). Additionally, 3D scanning and digital twin technologies, championed by organizations like the Archaeological Survey of India, support accurate documentation, virtual restoration, and immersive public engagement with heritage sites (ASI, 2022; PIB, 2025). National programs including the National Mission for Manuscripts and Indian

Heritage in Digital Space promote collaboration among government bodies, technology experts, and heritage professionals to preserve India's legacy effectively for future generations (PIB, 2025; OpenDOAR, 2019).

Designing an Integrated Repository Model :

Focus on Maharashtra's vibrant vernacular and historical architecture offers an ideal test bed for an integrated repository. An effective model in this context must bring together traditional custodians such as temple trusts and artisan guilds with modern digital platforms. This ensures not only the safeguarding of physical artifacts and oral traditions but also their cataloguing and accessibility for scholarly research and community education. Essential to this model is the adoption of multilingual, interoperable metadata systems that respect regional epistemologies and nuances; this allows local and indigenous knowledge to hold parity with pan-Indian or global discourses. The participatory process should actively involve scholars, knowledge holders, and policymakers at all stages, ensuring the repository remains a dynamic, evolving body of knowledge.

Aligning repository frameworks with national initiatives like NEP 2020 will enable seamless curricular integration of Indian Knowledge Systems and architectural heritage into contemporary education. Such alignment requires targeted policy interventions and institutional collaborations to bridge the gaps between traditional wisdom and formal scholarship. By fostering community engagement, repositories become living platforms serving academic interests, enabling innovation in sustainable architecture, and enabling marginalized voices and community practices to be documented and recognized. These participatory processes also create avenues for skill development, empowerment, and the trans generational transmission of cultural identity.

A future-proof framework for holistic cultural preservation hinges on several principles. Epistemic inclusivity ensures that oral, textual, and material cultures enjoy equal recognition within repositories. Technological adaptability necessitates the use of sustainable, open-source metadata standards and robust strategies for long-term digital preservation to guard against technological obsolescence. Close policy integration, linking digital repositories with the frameworks of education, cultural policy, and digital governance, can multiply their reach and efficacy. Above all, community engagement, with the direct involvement of local custodians, artisans, and scholars, is essential to safeguard both authenticity and cultural sanctity. Ethical stewardship underpins this entire endeavour committing to the prevention of commodification, ensuring recognition and fair intellectual property rights, and upholding cultural justice and dignity. This approach not only embodies India's philosophical vision of knowledge as a sacred and shared resource but also ensures its vibrant continuity across generations.

Conclusion :

Libraries and repositories in India have evolved from ancient manuscript halls to dynamic digital ecosystems, spanning a vast cultural and architectural spectrum. Integrating

Indian Knowledge Systems with modern archival technologies offers transformative possibilities for heritage preservation. Focused on Maharashtra's architectural legacy and broader civilizational frameworks, this research advocates a multidisciplinary, participatory repository model that rejuvenates traditional wisdom, enhances scholarly research, and sustains cultural identity amid global challenges. By bridging the past and future, Indian repositories can be centre of cultural renewal, inspiring sustainable architectural practice and knowledge dissemination globally.

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