

Artistic Narration and Cultural Industry Innovation of Rural Tourism and Culture in the Metaverse Perspective: A Case Study of the Hani Rice Terraces in Yunnan

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Abstract: The development of metaverse technologies offers a new paradigm for the value reconstruction of rural cultural tourism industries. Focusing on the Hani Rice Terraces in Yunnan as a case study, this paper, grounded in digital narrative theory and industrial value chain theory, constructs a three-layered artistic narrative framework—"symbolic translation – interactive immersion – philosophical resonance." This framework systematically explains how rural cultural resources can be artistically reinterpreted within metaverse spaces to facilitate the transformation from cultural value to economic value. Through policy text analysis, cross-case comparison, and theoretical deduction, the study reveals the internal mechanisms by which artistic narratives drive innovation in cultural tourism products, promote industrial synergy, and restructure benefit distribution systems. Furthermore, it proposes a "lightweight technology + localized narrative" management strategy tailored to rural contexts, offering both a theoretical framework and practical guidance for the digital transformation of rural cultural tourism.

Keywords: Metaverse, Rural Cultural Tourism, Artistic Narrative, Industrial Value Chain, Hani Rice Terraces

1. Introduction

The high-quality development of rural cultural tourism faces three pressing challenges: superficial cultural expression, product homogenization, and inefficient value transformation. The maturation of metaverse technologies—such as digital twins, VR/AR, and blockchain—offers new technical possibilities to overcome these barriers by constructing hybrid virtual-real experiential spaces that redefine the boundaries of cultural communication and consumption [1]. Against this backdrop, the role of artistic narrative is being re-evaluated: it is not merely a vehicle for representing cultural symbols but a core engine for restructuring the value chain of the cultural tourism industry [2]. As a UNESCO World Heritage Site bearing the legacy of millennia-old agricultural civilization, the Hani Rice Terraces—with their "forest–village–terrace–water system" ecosystem and the cultural DNA of the Hani people—offer a representative case for the application of artistic narrative in the metaverse.

Existing research primarily concentrates on the application of metaverse technologies in urban contexts (e.g., virtual museums, theme parks) or examines artistic narratives in isolation in relation

to cultural dissemination. There remains a lack of systematic analysis of the synergistic mechanisms among technology, art, and industry in rural contexts. Particularly under non-empirical conditions, a theoretical framework is urgently needed to uncover the intrinsic relationship between artistic narrative and industrial innovation. This paper makes three theoretical contributions: first, it constructs an analytical framework for artistic narrative in rural metaverse-based cultural tourism, filling a research gap in digital storytelling in rural settings; second, it elucidates the micro-level logic through which artistic narratives drive value chain reconstruction, enriching the theoretical foundation of cultural industry innovation; and third, it proposes a lightweight technological application path suited to rural environments, offering an actionable management paradigm for practical implementation.

2. Theoretical foundations and analytical framework

The integration of the metaverse into rural cultural tourism is not a mere layering of technologies, but rather a hybrid industrial form grounded in digital twin technologies and enriched by interactive technologies and cultural narratives. Its core feature lies in the interpenetration of the virtual and the real—virtual environments must authentically reflect rural cultural elements, while real-world experiences are extended and enhanced through digital tools. Within this context, artistic narrative—expressed through digital art forms such as virtual landscapes and interactive installations—constructs a system of cultural symbols and a logic of meaning production. Its essence lies in transforming cultural resources into experiential carriers that are perceivable, participatory, and shareable. Innovation in the cultural industry centers on value chain reconstruction, manifesting in three key shifts: tourism products evolve from "single sightseeing" to "immersive experiences" [3]; business models shift from "isolated operations" to "collaborative symbiosis"; and benefit distribution transitions from "capital-dominated" to "pluralistic sharing."

This transformation is underpinned by two major theoretical foundations. First, digital narrative theory, which emphasizes "multimodal symbolic coordination" and "user-participatory storytelling," elucidates the mechanism by which cultural experience transitions from passive reception to active creation. Second, industrial value chain theory provides the analytical tools for identifying innovation pathways, highlighting how artistic narratives penetrate each stage of the chain—creation, production, dissemination, and consumption—thereby expanding the value dimensions from economic to cultural and social, and enhancing value-added efficiency. Together, these theories construct a logical chain of "cultural resource input – artistic narrative transformation – industrial value output", with artistic narrative serving as the key intermediary linking cultural authenticity with technological possibilities.

Based on these foundations, this paper proposes a "three-dimensional driving" analytical framework. Using the agricultural techniques, ethnic legends, and ecological philosophy of the Hani Rice Terraces as core inputs, the framework delineates a three-level transformation process enabled by artistic narrative within the metaverse: (digitization of surface-level symbols, immersive interaction at the intermediate level, and philosophical resonance at the deep level). This process ultimately drives three forms of innovation within the cultural industry value chain: product form innovation, business ecosystem synergy, and benefit distribution restructuring. This transformation is moderated by three key variables: Technological adaptability (degree of lightweight application), Cultural translatability (balance between authenticity and innovation), Stakeholder coordination (mechanisms for multi-party participation). Together, these variables form a complete closed-loop system wherein artistic narrative serves as the driving force behind industrial innovation [4].

3. Layered construction of artistic narrative in the Hani Rice Terraces metaverse

3.1. Narrative foundations and the logic of translation of cultural resources

The cultural resources of the Hani Rice Terraces exhibit a tripartite structure: material, intangible, and spiritual. The material layer includes the texture of the terraced fields, mushroom-shaped dwellings, and traditional clothing patterns, all of which embody ecological wisdom and architectural craftsmanship. The intangible layer comprises living traditions such as the field-sacrificing ritual, the woodcut water distribution system, and the creation epic Abo Yanger, which collectively represent the living heritage of the Hani people. The spiritual layer is distilled into the ecological philosophy of “the unity of heaven and humanity”, which forms the core of cultural identity. Under traditional cultural tourism models, these resources are often presented via static displays or one-way narration, leading to fragmented symbolism, superficial experiences, and a detachment from deeper meaning—limiting the effective transmission of cultural value. The primary task of artistic narrative in the metaverse, therefore, is to reconstruct the narrative logic of these resources through digital technologies, transforming them from “scattered symbols” into an “organic system of meaning” [5].

3.2. Surface-level narrative: digital translation and visual reconstruction of cultural symbols

The surface-level narrative focuses on the digital reproduction of cultural symbols. However, the goal is not mere replication, but rather an artistic reinterpretation that balances authenticity retention with enhanced experience. For example, high-precision digital twin technology is used to reconstruct the “fourfold ecological system” of the terraces. Dynamic lighting simulations reflect the changing seasons—spring’s shimmering waters, summer’s swaying rice fields, autumn’s golden landscapes—while embedding real-time data on weather and farming activities to ensure both realism and informational richness [5]. For physical symbols such as the mushroom-shaped houses, 3D modeling deconstructs their mortise-and-tenon architecture and ecological design (e.g., the roof’s slope tailored to local rainfall patterns). Visitors can interactively explore these structures, gaining intuitive insights into the survival wisdom behind them. A key technique at this level is establishing a direct link between symbol and meaning. For instance, the “sunflower” motif in Hani clothing can be visually linked to the rice terrace irrigation system. By clicking the motif, an animated water flow is triggered, enhancing the metaphorical expression of cultural symbols [6].

3.3. Intermediate-level narrative: immersive storytelling and participatory creation

The intermediate-level narrative transcends linear storytelling through “plot-based tasks + user choice” to construct participatory experiences, transforming visitors from passive observers into active participants in the narrative. Using the Hani migration history as the basis for a central storyline, visitors take on the role of “pioneers” who complete tasks in virtual settings—such as “finding water sources,” “dividing farmland,” or “negotiating water distribution.” These tasks gradually unlock traditional knowledge systems like the woodcut water allocation method and the rice–fish–duck symbiosis. The tasks follow a “core narrative + optional side quests” model. For example, during the “field-sacrificing ceremony,” visitors’ choices regarding offerings or prayers trigger different responses from a virtual shaman (using recorded audio from Hani elders), ensuring both cultural authenticity and unique experiential variation. In addition, simplified UGC (User-Generated Content) tools are made available—such as voice-to-storyline and doodle-to-decoration

features—encouraging users to create personalized content (e.g., designing their own irrigation schemes for the virtual terraces). This fosters a “professional creation + public participation” narrative ecology, enriching narrative depth and enhancing user engagement.

3.4. Deep-level narrative: artistic expression of ecological philosophy and resonance of meaning

The deep-level narrative goes beyond specific symbols or storylines to convey the ecological philosophy of “the unity of heaven and humanity”, aiming to elevate users’ experience from cultural cognition to value identification. This is achieved through virtual installation art as a carrier of philosophical expression. In the core area of the metaverse, an interactive installation titled “Water Cycle” is placed. When users touch a virtual water droplet, it triggers a chain reaction—from water storage in forests, to distribution through villages, to terrace irrigation and eventual return flow—visually representing the symbiotic relationship between nature and human systems. Adjacent to this is an “Ecological Dialogue Wall”, displaying digital imagery of similar agrarian civilizations from around the world (e.g., the Ifugao Rice Terraces in the Philippines, the Lavaux Vineyards in Switzerland), highlighting the unique value of the Hani Terraces through comparison. This level of storytelling materializes abstract philosophy, enabling users to grasp the deeper spiritual dimensions of the culture through interaction. For instance, a virtual simulation of the negative consequences of over-cultivation—such as soil erosion and ecological imbalance—can serve as a reverse prompt, reinforcing appreciation for the Hani philosophy of moderate and sustainable use.

4. Restructuring the rural cultural tourism value chain through artistic narrative

4.1. Product innovation: from “sightseeing single items” to “integrated virtual–physical experience bundles”

Artistic narrative drives the transformation of cultural tourism products from “single physical space experiences” to “hybrid services integrating virtual and physical dimensions,” thereby reconstructing the product value structure. The core product takes the form of a bundled package combining virtual experiences with real-world entitlements: for example, completing a “virtual rice transplanting” task online grants eligibility for in-person fish catching in rice paddies; collecting digital artworks themed on terraces grants rights to customize physical cultural-creative products. Derivative products are developed based on narrative IPs—for instance, AR silver accessories inspired by virtual rituals of worshipping the fields (scannable to trigger ceremonial animations), or NFTs for terrace adoption, where holders receive the actual rice yield from specific plots. This product model expands the dimensions of value—from traditional spatial consumption to temporal consumption (participation in virtual tasks), symbolic consumption (collection of digital artifacts), and emotional consumption (fulfillment of cultural identity)—significantly increasing per-visitor value contribution.

4.2. Industrial synergy: from “isolated operations” to “digital cultural complexes”

The cross-domain nature of artistic narratives facilitates a shift from “tourism operating in isolation” to “multi-sector collaborative ecosystems,” forming a value chain that connects digital content creation, virtual experience services, and real-world industrial linkages. On the digital end, rural digital art studios are established to handle narrative content production and virtual scene maintenance. On the experience end, metaverse experience centers are integrated with local

homestays and restaurants, linking virtual tasks to physical services (e.g., participating in a traditional banquet at a homestay after completing a virtual field-worship ritual). On the industrial end, artistic narrative stimulates upgrades in related sectors such as cultural-creative design and agricultural product processing—for example, developing textiles based on terrace patterns from virtual scenes, or promoting customized agricultural production based on visitor adoption of rice fields. The key to this synergy lies in constructing a cohesive narrative IP, enabling various sectors to collaborate around a unified cultural theme, rather than simply layering technologies.

4.3. Benefit distribution: from “capital dominance” to “multi-party shared ecosystem”

The co-creative nature of artistic narrative opens up new possibilities for innovating benefit-sharing mechanisms, centered on establishing an equitable relationship between cultural contribution and value return. Through blockchain-based rights confirmation, cultural materials provided by villagers—such as legends or craft demonstrations—can be converted into digital assets and integrated into revenue-sharing models (e.g., 30% of virtual ticket sales distributed according to material contribution). The establishment of a Digital Cultural Cooperative enables villagers to engage in tasks such as virtual scene voiceovers and digitization of traditional techniques, creating stable income streams. For art institutions and tech firms, a “base service fee + profit-sharing” model is adopted: tech partners handle platform development, while art teams lead content creation, with virtual item sales profits shared at a 4:6 ratio. Additionally, a portion of the revenue is reinvested into village collectives for cultural preservation efforts. This mechanism not only preserves the creative motivation of professional institutions, but also ensures that villagers directly benefit from cultural transmission, thereby reinforcing the community foundation for sustainable industrial development [7].

5. Management strategies and adaptive pathways for the implementation of artistic narrative

5.1. Technological adaptation: balancing lightweight applications with localized transformation

In rural settings, the application of technology must avoid the pitfalls of “heavy investment and high entry barriers”, and prioritize “low-cost, easy-to-operate” lightweight solutions. At the hardware level, mobile-based AR can replace VR headsets to lower the user threshold; offline experience packages can be developed to address unstable network conditions in mountainous areas, allowing visitors to pre-download virtual scenes and synchronize data when connected. At the software level, UGC tools should be simplified and support intuitive interaction methods such as voice commands and gesture recognition, enabling villagers and elderly tourists to easily participate in content creation. Technological modifications should align with the rural context—for example, integrating traditional Hani folk songs as audio navigation in virtual scenes, and using local languages in place of rigid machine-generated voiceovers, thereby enhancing the cultural adaptability of the technology.

5.2. Narrative collaboration: division of roles and creative norms among multiple stakeholders

A four-party collaboration mechanism should be established involving government, enterprises, communities, and art institutions: The government is responsible for policy guidance and cultural authenticity review, and for drafting the “Metaverse Narrative Content Guidelines” to prevent misinterpretation or misuse of cultural symbols; Enterprises are tasked with technical development

and commercial operations, ensuring the stability and smooth experience of narrative scenarios; The community (including villagers and intangible cultural heritage inheritors) provides cultural materials and participates in content review, to prevent distortion of meaning; Art institutions are responsible for the artistic translation of narratives, balancing professional depth with public accessibility [8]. Emphasis should be placed on building a “Cultural Material Library” and “Narrative Templates”: the former collects certified traditional symbols and stories; the latter provides standardized narrative frameworks (e.g., the “Migration–Cultivation–Guardianship” storyline), which both ensure creative efficiency and protect cultural boundaries.

5.3. Value assessment: building a multi-dimensional evaluation system of culture, economy, and society

The value assessment of artistic narratives must go beyond singular economic metrics, and instead construct a multi-dimensional evaluation system encompassing cultural dissemination, community participation, and experiential immersion. Cultural dissemination is measured by the spread of digital collectibles and the accuracy of cultural symbols in user-generated content; Community participation focuses on the proportion of villagers involved in content creation and their income levels; Experiential immersion is evaluated based on user time spent in virtual scenes, task completion rates, and emotional feedback (e.g., “Has your understanding of Hani culture deepened?”). This indicator system enables dynamic adjustment of narrative strategies and resource investment, ensuring that artistic narratives achieve not only economic value, but also contribute to cultural transmission and community empowerment [9].

6. Cross-case comparison and theoretical implications

By comparing metaverse cultural tourism projects such as Yan Fu’s Hometown in Fujian and Henan’s Yellow River Intangible Cultural Heritage, common patterns and differentiated paths in rural artistic narratives can be distilled. All three emphasize the preservation of cultural authenticity, but differ in narrative focus: Yan Fu’s Hometown centers on interactive enactment of historical figure IPs; the Yellow River Intangible Cultural Heritage project focuses on digital transmission of craftsmanship; while the Hani Terraces anchor their core narrative in ecological philosophy. This suggests that artistic narratives must anchor themselves in the core characteristics of local culture. In terms of technological approaches, all three prioritize a “lightweight first” strategy, avoiding overreliance on high-end equipment, confirming the unique demands of rural contexts for technological adaptability. Regarding industrial collaboration, all projects emphasize the linkage between digital content and physical industries. However, due to its agricultural involvement, the Hani Terraces place greater emphasis on a “virtual adoption—physical return” closed-loop design, providing a replicable model for agriculture-based rural cultural tourism.

These cases collectively reveal that the key to success in metaverse rural cultural tourism lies not in technological advancement per se, but in whether artistic narratives can accurately capture the cultural core, adapt to local rural conditions, and construct a multi-stakeholder win-win benefit mechanism. The essence of artistic narrative is to “empower culture through technology” rather than “replace culture with technology,” with the highest ideal being to render technology “invisible,” making cultural value the core of the experience.

7. Conclusion and outlook

This study constructs a three-layer artistic narrative system for the metaverse, revealing the internal logic by which rural cultural resources are digitally translated to achieve value reconstruction. The research finds that artistic narratives establish cultural cognition through surface-level symbol translation, enhance experiential immersion via mid-level interactive enactment, and strengthen value identification through deep-level philosophical expression, forming a complete conversion chain from cultural value to economic value. This drives systematic innovation in the cultural tourism industry value chain across product forms, business models, and benefit distribution. For rural settings, a combination of “lightweight technology + localized narrative” is an effective pathway to balance technological empowerment with cultural authenticity, while a multi-stakeholder collaboration mechanism serves as the institutional guarantee for innovation implementation.

This study is limited by the lack of field data verification. Future research can further test the theoretical framework through simulated experiments (such as virtual scene user experience surveys) or by tracking the actual progress of the Hani Terraces project. With the development of AI-generated content and cross-chain technologies, metaverse artistic narratives are expected to present new trends such as “personalized customization” and “cross-regional IP linkage.” How to maintain the uniqueness and subjectivity of rural culture amid these trends will be an important focus for subsequent research.

References

- [1] Yu, G. M., & Geng, X. M. (2022). Metaverse: The future vision and development logic of a mediatized society. *Journal of Journalism and Communication Research*, 29(3), 5–24.
- [2] Chen, L. X. (2023). Cultural identity and the internal logic and practical path of cultural-tourism integration. *Zhejiang Social Sciences*, (5), 76–84.
- [3] Li, L. L., & Lin, Q. Q. (2021). Research on the reconstruction mechanism of the digital cultural tourism industry value chain. *Tourism Tribune*, 36(7), 13–26.
- [4] Xu, W., & Wu, C. Z. (2023). Artistic narrative paths of the metaverse empowering rural cultural tourism. *China Cultural Industry Commentary*, 35(2), 189–203.
- [5] Wang, X. C., & Yang, Y. L. (2024). Digitization and tourism revitalization of Hani Terraces cultural heritage. *Journal of Yunnan Normal University*, 56(1), 102–112.
- [6] Zhang, W., & Zhou, L. (2024). The influence mechanism of immersive narrative on intangible cultural heritage communication. *Journalism & Communication*, (1), 78–92.
- [7] Huang, Y. L., & Ji, M. M. (2023). Application model of blockchain technology in the benefit distribution of cultural heritage. *Journal of Shandong University*, (4), 124–135.
- [8] Ministry of Culture and Tourism of the People’s Republic of China. (2020, November 18). Opinions on promoting high-quality development of the digital cultural industry [EB/OL].
- [9] Yunnan Provincial Department of Culture and Tourism. (2021). The 14th Five-Year Plan for the Development of Culture and Tourism in Yunnan Province [R].