

Research on the Construction and Development Path of Rural Cultural Tourism Brand Value Driven by Digital Intelligence Technology

-- Taking the Village of Kucun in Taishun County, Wenzhou, as an Example.

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Abstract

Building upon the widespread recognition of art's role in rural revitalization, the integration of digital intelligence provides essential technical support, data backing, and novel approaches to shaping rural cultural tourism brands. This paper uses the case of Kucun Village in Taishun County, Wenzhou, to explore the value and pathways of rural cultural tourism brand development driven by digital intelligence. Specifically, it demonstrates the application of artificial intelligence, big data, and digital technologies in brand building, assisting in the creation of rural creative landscapes, the development of cultural and creative products, and the design of distinctive packaging through data analysis, content generation, creative assistance, and digital modeling. This approach injects new vitality and momentum into the creation of rural cultural tourism brands in the digital intelligence era.

Keywords

Digital Technology Rural Cultural; Tourism Brand; Ku Village.

1. Introduction

With the comprehensive implementation of the rural revitalization strategy, the connotations and forms of rural construction have undergone profound changes. The construction of rural cultural tourism brands has gradually emerged as a new development model that promotes the deep integration of rural culture and economy. Effective cultural tourism brand building can not only enhance the cultural value of rural areas but also drive economic development, improve infrastructure construction, and enhance the image of rural areas. General Secretary Xi Jinping pointed out at the 34th collective study of the 19th Central Political Bureau, "In the current era, digital technology and the digital economy are the opportunities of the world's technological revolution and industrial transformation, and are the key areas of a new round of international competition. We must seize the opportunity and seize the commanding heights of future development." [1] The introduction of digital and intelligent technologies provides more convenient and efficient means for creating rural cultural tourism brands, provides a new platform and tools for the cultivation of creative industries, and opens up new growth points for rural economic development.

The ancient dwellings of Kucun Village in Taishun County, Wenzhou, were constructed during the late Tang Dynasty and have a history of over 1,200 years, spanning the Five Dynasties, Song, Yuan, Ming, and Qing dynasties. As the oldest, largest, and best-preserved village among Taishun's ancient residences, it is included in China's fourth batch of traditional ancient villages, boasting rich cultural resources and a tradition of artistic creation. In recent years, there has been a growing trend of art interventions in rural construction, with artists like Qu Yan, Zuo

Jing, and Ou Ning leading the way in integrating artistic creation and works into rural development. The significance of art's involvement in rural construction lies not in the intervention itself, but in establishing a harmonious relationship between art and the countryside.[2] The branding of Kucun's cultural tourism is a prime example of art's integration into rural construction, leveraging advanced digital and intelligent technologies to explore a model for shaping rural cultural tourism brands that is both regionally distinctive and technology-driven.

2. The Practical Path of Digital Technology Empowering the Shaping of Rural Cultural Tourism Brands

2.1. Big Data Empowering Art-Driven Rural Construction

The application of big data in art-driven rural construction refers to the utilization of big data technologies and methodologies to conduct in-depth analysis and mining of massive datasets. This supports the creative development, market positioning, user research, and marketing promotion of cultural and creative products. The primary applications of big data in the development of cultural and creative products include the tracking of user behavior data and content generation with creative assistance.

The analytical capabilities of big data play a crucial role in the development of cultural and creative products. By deeply analyzing user behavior and consumption habits in the market, it provides strong guidance and decision-making support for product design. Through tracking user interactions online, such as browsing, clicking, and purchasing, design teams can obtain valuable user behavior data. These data reflect users' actual operations, as well as their preferences, interests, and needs.

Content generation and creative assistance represent another application of big data technology in the development of cultural and creative products. It utilizes advanced analysis and processing methods to deeply analyze massive amounts of multimedia content data, including text, images, and audio, providing powerful assistance and inspiration for the creative development of cultural and creative products. This not only offers creative teams novel inspiration and materials but also enriches the creative connotations and expressive forms of cultural and creative products.

2.2. Artificial Intelligence Empowering Art-Driven Rural Construction

With the continuous advancement of technology, Artificial Intelligence Generated Content (AIGC) is assuming an increasingly significant role in the design of cultural and creative products. Leveraging intelligent algorithms and technologies, AIGC provides cultural and creative products with more personalized, creative, and forward-looking designs, thereby enhancing product user experience, appeal, and market competitiveness.

Through advanced deep learning and natural language processing technologies, AIGC can effortlessly generate creative concepts, storylines, and other elements related to village culture, providing designers with a creative starting point and a production engine. Furthermore, AIGC possesses the capability to migrate and integrate different artistic styles, thereby creating entirely new and unique designs for cultural and creative products.

In the innovative development of cultural and creative products, the application of AIGC is also reflected in design assistance and automation. With AIGC as an aid, designers can conceive and design products more efficiently. From the perspective of design generation, the advancement of AIGC image generation technology has brought new impetus to the design field. [3]During the design process, AIGC can automatically generate multiple design schemes for the design team based on user needs and preferences, enabling designers to quickly explore different creative directions.

2.3. Digital Technology Empowering Art and Rural Construction

application of digital production and manufacturing technologies is profoundly revolutionizing the methods and approaches to creative design. The application of digital production and manufacturing technologies in the creative design of cultural and creative products mainly takes the following forms:

Digital Modeling and Prototyping: Digital technology provides designers with an efficient and precise way to validate and realize creative designs. By utilizing digital modeling software, such as 3DMAX and MAYA, designers can create highly accurate digital models, thereby designing the initial prototypes of cultural and creative products and evaluating and verifying their market feasibility. Simultaneously, these digital models can also be used to generate three-dimensional printed prototypes of actual products, rapidly transforming creative designs that originally existed in the virtual world into actual physical entities. Through 3D printing technology, designers can turn digital models into real product prototypes. These prototypes can be used for actual demonstrations, testing, and evaluation. This process can accelerate the product development process, reduce the cost of trial and error, and enable creative ideas to be implemented more quickly.

Process Manufacturing Process Control and Optimization: With the aid of digital technology, the process manufacturing process can be more precisely controlled and optimized. The selection of materials, processing procedures, engraving, printing, and other aspects can be more accurately controlled through digital processes, thereby ensuring the quality and consistency of the final product.

3. Vivid Practices of Digital Technology Empowering Rural Cultural Tourism Brand Building: A Case Study of the Kucun Cultural Tourism Brand Design

3.1. Precise User Profiling: Quantitative Customization and Core Elements

Big data analytics played a crucial role in the design of the Kucun IP image and its series of cultural and creative products. Through quantitative data analysis, the Kucun cultural tourism brand design team conducted an in-depth exploration of consumer behavior data from major online shopping websites, providing data support for accurately positioning user needs. Research revealed that IP images leaning towards a "cute" aesthetic, especially those with facial designs featuring large eyes, small mouths, and blush, could better attract consumers' attention, enhancing their approachability and affinity, which aligns with current consumer preferences for cute and playful elements. Furthermore, the team refined user profiles by analyzing consumers' purchasing time, frequency, and price sensitivity. Based on these data insights, the IP image design of Kucun incorporated the charm of ancient Tang Dynasty style. The design of hats and hairpins was inspired by the shape of the Shiyang Gate in Kucun. Simultaneously, referencing the architectural features of local cobblestone stacking, the characters' faces were designed to be round and full, fitting the cultural characteristics of the Tang Dynasty, which emphasized "plump" beauty, highlighting the unique local cultural elements of Kucun. The designs of male and female images complemented each other, catering to the preferences of users of different genders.

Furthermore, the cultural tourism brand design team for Ku Village leveraged big data analytics to comprehensively analyze materials related to Ku Village's history, culture, natural resources, local anecdotes, and architectural characteristics. This analysis culminated in the identification of three key thematic elements unique to Ku Village: "Tang and Song Dynasty Legacy," "Ming and Qing Dynasty Architecture," and "Exploring Stone Alleys." The team then extracted a representative element from each of these themes to inform the design of Ku Village's exclusive

logo. Specifically, the design incorporated the shape and texture of Tang Dynasty windows from Ku Village's Tang and Song Dynasty architecture, the "xuanyu" (a decorative component found on eaves) from Ming and Qing Dynasty architecture, and elements of the ancient city from "Exploring Stone Alleys." Through thoughtful conceptualization, these elements were skillfully integrated. The logo design centers on the Chinese character "库" (Ku), adhering to the aesthetic principle of symmetry and embodying an overall style reminiscent of ancient Tang Dynasty aesthetics. The central portion incorporates the form of a Tang Dynasty window, symbolizing openness and development, and representing Ku Village as a window to traditional Chinese culture and a gateway to future rural development. The "xuanyu" is a highly valued decorative element in Ku Village residences, signifying good fortune and protection. The character "广" (guang, meaning "wide" or "broad") is abstracted to form the tail of the "xuanyu," which, combined with the geographical feature of Ku Village being surrounded by mountains on three sides, is rendered in an arched shape, symbolizing the protection and inheritance of Ku Village's culture. The color palette, inspired by the architectural style of Ku Village, utilizes earth tones to represent vitality and growth. Ultimately, the cultural and creative products developed based on this data-driven approach have achieved significant market success, leading to increased user satisfaction and providing a compelling example for traditional cultural tourism brand design.

3.2. Expanding Digital Thinking: Intelligent Design and Cultural Reconstruction

At the project's inception, the Kucun cultural tourism brand design team utilized Artificial Intelligence Generated Content (AIGC) technology to systematically analyze Kucun's culture, identifying five core cultural elements: blue batik patterns, cobblestones, the Shiyang Gate, red yeast rice, and "xuanyu" (a traditional architectural element). This provided a clear cultural framework for subsequent design work. AIGC technology, through the analysis and processing of extensive cultural data, can automatically extract representative cultural symbols, avoiding the limitations and biases that may arise in traditional manual design, thereby enhancing the precision and creativity of the design process. In the design of derivative imagery, AIGC further demonstrated its advantages in intelligent recommendation. Based on Kucun's traditional cultural background, AIGC offered the design team multiple innovative design directions, such as integrating Taishun's distinctive puppet show culture with the Kucun IP image, or designing around Kucun's unique tea pillows. These intelligent derivative design directions significantly improved design efficiency and diversity, providing an efficient, flexible, and sustainable solution for the design of traditional cultural tourism brands.

3.3. Driving Smart Manufacturing: Precise Modeling and Process Optimization

Following the completion of the Kucun cultural tourism brand's IP image and cultural and creative product designs, the design team immediately employed digital modeling software, such as 3DMAX, to precisely model the IP image. By integrating advanced 3D printing technology, the team successfully transformed virtual designs into tangible products. The combination of digital modeling and 3D printing not only enhanced design efficiency but also provided high-precision references for actual production, ensuring that every detail perfectly aligned with the creative design.

In terms of creating innovative landscapes, the Kucun cultural tourism brand design team also utilized digital modeling technology to virtually showcase personalized design schemes for Kucun's rural micro-scenes, public spaces, and homestay renovations. This approach allowed the team to present villagers with more intuitive and three-dimensional renderings of the renovation effects from the project's outset. This enhanced the villagers' recognition of and

participation in the renovation projects, ensuring that the design schemes were more feasible and effective in their localized application.

Following community approval, the design team advanced the creative landscape enhancement for key areas within Ku Village, including the parent-child study base, intangible cultural heritage experience center, mass culture center, and visitor sharing center. The Ku Village IP image was then integrated into these specific settings. Throughout this process, the application of digital technology ensured a similarity of over 90% between the design proposals and the actual outcomes, achieving a near "one-to-one" replication of the design concepts in the final products. This offers a valuable technical framework for other cultural revitalization projects of a similar nature.

4. Realization of Digital and Smart Technologies Empowering the Shaping of Rural Cultural Tourism Brands

4.1. Continuing the Vein: Cultural Charm in the Digital Context

The core of empowering rural cultural tourism brand construction with digital and smart technologies lies in starting from the unique resources of the countryside itself, deeply exploring its historical and cultural heritage, and fully demonstrating and inheriting local culture through advanced technological means. The countryside possesses unique natural landscapes, historical sites, traditional crafts, and folk customs, which are the basic resources for constructing rural cultural tourism brands. Digital and smart technologies can accurately identify, extract, and present these cultural resources, and through virtual reality (VR) and augmented reality (AR) technologies, enable these traditional cultures to rejuvenate on digital platforms. At the same time, the shaping of rural cultural tourism brands not only relies on the introduction of external technological means but also requires the deep integration of these technologies with the local cultural resources of the countryside, achieving a harmonious blend of technology and cultural resources. This approach makes the brand more in line with the needs of contemporary tourists while preserving the authenticity of rural culture. Only by being rooted in local culture, maximizing the excavation and display of the cultural characteristics of the countryside, can rural cultural tourism brands stand out.

4.2. Emotional Drive: Local Identity in the Digital Context

Emotional drive plays a crucial role in the construction of rural cultural tourism brands empowered by digital and intelligent technologies. It serves as the intrinsic motivation for enhancing brand appeal, fostering cultural identity, and promoting social cohesion within rural communities. The sense of identity and belonging among rural residents stems primarily from their understanding and recognition of their own culture. Digital and intelligent technologies, through immersive experiences, virtual design displays, and digital platforms, can assist residents in better comprehending and appreciating the value of traditional culture. This, in turn, fosters a stronger emotional connection with their rural culture. This emotional resonance and identification lay a solid social foundation for the long-term success of rural cultural tourism brands. Therefore, the empowerment of rural cultural tourism brand construction through digital and intelligent technologies should prioritize stimulating the cultural identity of rural residents. By leveraging emotional drivers, we can strengthen their understanding and pride in local culture, thereby promoting the sustainable development of cultural tourism brands and social integration.

4.3. Local Participation: The Role of the Subject in the Digital Context

The "artistic rootedness" concept refers to artists creating within specific locales and spaces, emphasizing the particular site and its utilization in art.[4] Place-based participation fosters a sense of ownership among rural residents, encouraging their active involvement in the

development of cultural tourism brands, thereby promoting the brand's endogenous growth and sustainability. Rural residents should not merely be seen as inheritors and beneficiaries of culture but also as active contributors to the brand's formation. Digital and smart technologies can facilitate rural residents' participation in various aspects of brand development, including creative design and cultural display. The diversity and interactivity of participants can also ensure that the brand is more closely aligned with the realities of rural areas. Furthermore, digital and smart technologies provide rural residents with more channels for decision-making and feedback, such as online platforms for gathering opinions and suggestions on cultural tourism brand development, thus achieving consensus and joint promotion of brand development among residents. In this way, the construction of rural cultural tourism brands is not only driven by external forces but also organically integrates the internal strength of residents, forming a virtuous cycle of self-driven, internal, and external collaboration.

Digital and smart technologies, as crucial drivers of rural revitalization and cultural heritage, possess substantial potential and developmental prospects, offering novel opportunities and transformative impetus for rural areas. With ongoing technological advancements and evolving demands in rural culture, these technologies will be increasingly integrated into the construction of rural cultural tourism brands, fostering sustainable development. In the context of Kucun village's cultural tourism brand development, the deep integration of technology and cultural resources has spurred innovation in rural culture. Emotionally-driven brand building has deepened the emotional resonance between rural culture and tourists and residents, fostering strong cultural identification and a sense of belonging. Concurrently, the active participation of local residents has injected vitality into brand construction, with villagers playing an active role in the design, promotion, and development of the cultural tourism brand, thereby becoming key contributors to its success. This interplay of technology and culture, combined with emotional identification and resident involvement, has been pivotal in driving the successful development of Kucun's cultural tourism brand. As digital and smart technologies continue to evolve and be applied, more rural areas will be able to leverage this technological power to enhance their cultural competitiveness, stimulate endogenous development potential, and achieve dual improvements in economic and social benefits.

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