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A Study on the Construction and Practice of the "Five Dimension Three Stage" Model from the Perspective of Intangible Cultural Heritage Symbiosis Empowering Rural Revitalization

—A Case Study of Banshan Village in Hangzhou

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Abstract

Against the strategic background of comprehensively promoting rural revitalization and strengthening the systematic protection and inheritance of intangible cultural heritage (ICH), the integration of living ICH inheritance and rural development serves as an important path for rural cultural revitalization. ICH villages generally face practical bottlenecks including insufficient factor coordination, ambiguous development paths, loose benefit linkages among multiple stakeholders and superficial digital empowerment. Taking Banshan Village, Baizhang Town, Yuhang District, Hangzhou as a case, this paper adopts literature review, field investigation, questionnaire and interview, case study and action research to construct a "Five-Dimension Integration—Three-Stage Progression" analytical framework. The five dimensions were pre-defined based on literature review and theoretical deduction, and interview coding was used to refine and supplement this framework. Partial modules of the framework were selected for a six-month small-scale action research pilot. Pilot outcomes preliminarily verify the feasibility of the components actually tested in this study, demonstrating that lightweight digital tools, themed spatial renovation and multi-stakeholder collaboration help revitalize idle rural resources and promote the integration of agriculture, culture and tourism. The effectiveness of full three-stage implementation, villagers' income growth effect and cross-village transferability of the model remain unverified. Purposive case selection is adopted in this study, and the case site receives strong local policy support; such contextual conditions constrain the generalizability of the findings. This study provides phased pilot references for similar hilly bamboo-for-

est ICH villages and enriches the micro-mechanism analysis of ICH-empowered rural revitalization.

Subject Areas

Rural Studies, Cultural Heritage, Public Administration

Keywords

Intangible Cultural Heritage Symbiosis, Rural Revitalization, Five Dimension Three Stage Model, Living Inheritance, Collaborative Governance

1. Introduction

Rural Comprehensive Revitalization Plan (2024-2027) clearly proposes to reshape rural cultural ecology and enhance the influence of rural culture, and sets the protection and inheritance of intangible cultural heritage, revitalization of traditional crafts, and in-depth integration of culture and tourism as core tasks [1]. The Notice on Promoting the In-depth Integration of Intangible Cultural Heritage and Tourism issued by the Ministry of Culture and Tourism further refines relevant paths, requiring the fostering of new integrated business forms, the creation of integrated products and the improvement of integration mechanisms [2]. As a leading province in rural revitalization and ICH protection, Zhejiang Province has issued the Action Plan for the Inheritance of Intangible Cultural Heritage "Xinhuo", which promotes "five creativity integration" between ICH and rural tourism: brand building for products, optimization of environment, cultural innovation, operational efficiency improvement and model innovation. Driven by policies and consumption upgrading, ICH endowment serves as the basic threshold for rural development, while the capacity of living inheritance and value transformation determines the endogenous soft power of rural areas.

1.1. Research Background

A large number of traditional Chinese villages are endowed with abundant ICH resources and ecological endowments, yet most ICH rich villages are trapped in development bottlenecks. Existing academic studies and grassroots practices have explored approaches such as ICH workshops, e-commerce sales and homestay renovation. However, three prominent problems remain. First, factor synergy is insufficient: existing researches and practices mostly focus on industrial development or craft protection from a single perspective, lacking multi factor integrated systematic frameworks for generating joint driving forces. Second, mechanisms are ambiguous: most existing models originate from plain or culturally advantaged tourism villages, while customized paths for hilly bamboo forest villages are scarce and hard to replicate. Third, stakeholder connection is loose: multiple agents often face ambiguous rights and responsibilities, imbalanced benefit distri-

bution and low collaboration efficiency. Development led by a single subject can hardly stimulate endogenous motivation. Meanwhile, digital technology driven rural development has become a general trend, yet digital applications in most villages are confined to promotional publicity rather than forming whole chain systems covering ICH conservation, production and marketing. As a typical hilly bamboo forest ICH endowed village in northern Zhejiang, Banshan Village possesses provincial level ICH Banshan Bamboo Weaving, municipal level ICH Aoyu Dragon Lantern and 2000 mu bamboo forests. It is also confronted with aging inheritors, low resource utilization rate, low end industries and insufficient multi agent collaboration. Accordingly, taking Banshan Village as a case, this paper introduces symbiosis theory and constructs the "Five Dimension Three Stage" systematic model to explore implementation paths for ICH symbiosis empowering rural revitalization.

1.2. Significance of the Research

This study constructs an integrated analytical framework of "Five Dimension Integration", incorporating cultural inheritance, industrial development, space utilization, digital operation and stakeholder governance into a unified system. It breaks the limitations of fragmented mono-dimensional research and provides a structured and reusable research paradigm for ICH-endowed rural revitalization. The research also establishes the phased implementation theory of "Three Stage Progression", which divides development into foundation building, quality improvement and radiation output phases, clarifies core tasks in each time sequence, and fills the gap that existing rural revitalization studies overemphasize goals while neglecting phased processes. Moreover, this paper expands theories on rural multi-stakeholder collaborative governance and benefit linkage, clarifies the internal logical relations among ICH conservation, rural economy, space, digital technology and governance, and enriches the theoretical system for the symbiotic development of ICH and rural revitalization. Practically, rooted in real-world rural scenarios, this research strives to revitalize local ICH resources, resolve the crisis of inheritance interruption and enhance villagers' cultural identity to realize the living inheritance of intangible cultural heritage. It helps revitalize stock resources such as idle rural houses and bamboo forests, boost the integrated development of primary, secondary and tertiary industries and strengthen the hematopoietic capacity of rural industries. The proposed model can diversify villagers' income sources including labor remuneration, shares and dividends, expand the village collective economy and realize inclusive sharing of development achievements. Finally, replicable practical paths are summarized to offer practical references and demonstration samples for similar hilly villages with intangible cultural heritage resources across China.

1.3. Literature Review

Academic circles generally recognize the positive value of intangible cultural her-

itage as characteristic cultural resources for rural revitalization. Chen Anying pointed out that rural ICH is commonly challenged by aging inheritors, low youth participation, static-oriented protection and weak capacity for living transformation, with numerous traditional crafts on the verge of extinction [3]. Yang Qi argued that ICH empowering rural revitalization should transcend single economic dimensions and exert multi-dimensional values covering governance, ecology, civilization and industry simultaneously [4]. Nevertheless, existing studies mostly focus on value interpretation and individual case description, while discussions on micro-mechanisms of how ICH is systematically embedded into rural development remain insufficient.

The concept of "symbiosis" was first put forward by German mycologist Heinrich Anton de Bary and later extended to public administration and social governance research fields. He and Wang held that inheritors exist in multiple symbiotic circles including family, ethnic groups, mechanical reproduction and internet networks, and dynamic balance and benign interaction interwoven by political, economic, cultural and technological forces are prerequisites for successful inheritance [5]. From the perspective of multi-stakeholder collaboration, Zheng Changhui *et al.* indicated that effective collaborative media and mechanisms are critical for rural cultural tourism space construction, and ICH shall serve as a bond to fit preferences of different groups [6]. Still, existing symbiosis-oriented researches mostly stay at theoretical interpretation, with few studies targeting operable implementation models for rural ICH scenarios.

Scholars have also examined digital empowerment for rural intangible cultural heritage. Bi Chuanlong *et al.* noted that current digital technology applications mostly remain at the publicity-oriented stage instead of forming whole-chain systems for ICH conservation, production and marketing [7]. Guo Junliang pointed out that digital platforms can reconstruct collaboration and resource matching and provide technical support for multi-agent collaborative governance [8]. On the whole, digital technology applications in rural ICH contexts concentrate on communication terminals; whole-chain researches covering production, operation and governance are insufficient, and lightweight digital tools for grassroots villages are rarely available.

To sum up, academic consensus has been achieved on ICH connotation, economic value and multi-stakeholder participation, whereas three obvious research gaps still exist. At the fundamental research level, discussions on benefit linkage, profit distribution and long-term symbiotic implementation mechanisms in rural contexts are inadequate. At the theoretical model level, mono-perspective researches dominate, lacking multi-factor integrated analytical frameworks, and customized models for hilly bamboo-forest ICH-endowed villages are rare. At the practical research level, targeted empirical studies on hilly bamboo-forest villages are insufficient; digital empowerment is mostly limited to publicity without whole-chain verification. Therefore, this paper takes Banshan Village as a case to construct and empirically test the "Five Dimension Three Stage" ICH symbiosis

model so as to fill the above-mentioned research gaps.

1.4. Research Content and Methodology

Centering on the core issue of constructing and practising the "Five-Dimension-Three-Stage" model for ICH-symbiosis-empowered rural revitalization, this study unfolds sequentially from problem diagnosis, model construction, practical validation to mechanism guarantee.

Firstly, it diagnoses practical dilemmas of Banshan Village. From five dimensions including ICH revitalization, industrial integration, space utilization, digital empowerment and multi-stakeholder collaboration, this study investigates local development status, identifies core dilemmas and explores their deep-seated formative causes.

Secondly, an integrated "Five-Dimension-Three-Stage" ICH symbiosis model is constructed. It illustrates the synergy mechanism among the five core dimensions and the phased development path of three-stage progression, clarifying the internal symbiotic logic among cultural inheritance, industry, space, digital technology and stakeholders.

Thirdly, small-scale pilot practice is carried out via action research to test model feasibility and practical effects. Targeted countermeasures and phased implementation schemes are put into partial practice, and empirical evidence is collected to iterate and optimize the overall model.

Fourth, long-term guarantee mechanisms are proposed. Systematic supporting mechanisms are designed at policy, environmental and stakeholder levels to sustain the stable operation of the proposed model for hilly ICH-endowed villages.

We used these research methods:

1) Literature review. We sort out core documents covering intangible cultural heritage protection, rural revitalization, symbiosis theory and digital-rural development. Relevant journal papers and policy documents are collected to lay a solid theoretical foundation for this research.

2) Field investigation method. We conduct on-site visits to Banshan Village, including bamboo-forest zones, ICH workshops, historical sites, idle rural houses and homestay sites, to collect first-hand field materials, village-level statistical ledgers and local policy documents.

3) Questionnaire and Interview Method. Questionnaires are distributed among local permanent villagers above 18 years old. Semi-structured in-depth interviews are implemented with village committee cadres, ICH inheritors, ordinary villagers and township cultural-tourism administrators to collect multi-subject demands. Questionnaire data are processed by descriptive statistics, while interview transcripts are coded with grounded-theory three-level coding procedures. Cohen's κ coefficient is calculated to test coding reliability.

4) Case study method. Comparative analysis is conducted on typical ICH-rich rural cases inside and outside Zhejiang Province. Lessons and practical experience are summarized to provide references for model construction in this paper.

5) Action research method. In cooperation with the village collective and local cooperatives, small-scale pilot practices are implemented. Process data are continuously recorded, and the practical path is iteratively adjusted according to real-world feedback.

1.5. Theoretical Basis

Symbiosis Theory. It emphasizes interdependence and co evolution among different subjects. Introduced into rural ICH scenarios in this study, it demonstrates internal mutual promotion logic among ICH, industry, space, digital technology and stakeholders, and constructs multi stakeholder benefit sharing mechanisms.

Collaborative Governance Theory. It advocates joint governance by government, professional teams, communities, groups and individuals. This theory is adopted to establish the collaborative framework of "government guidance professional operation cooperative implementation" and clarify rights and obligations of all parties.

Primary Secondary Tertiary Industry Integration Theory. It advocates breaking industrial boundaries and promoting cross infiltration among industries. Guided by this theory, this study promotes bamboo resource transformation from primary raw material processing to diversified business forms including cultural creativity, homestay services and performance, so as to extend industrial chains.

Digital Countryside Theory. It focuses on how digital technologies empower industrial integration and governance optimization. This theory supports the design of smart operation platforms to realize online offline whole link connection and improve rural governance efficiency.

1.6. Selection of the Research Field

This study targets hilly bamboo-forest villages endowed with intangible cultural heritage in northern Zhejiang Province. The selection of this research field is mainly based on the following considerations.

Firstly, typical representativeness of development dilemmas. Hilly bamboo-forest ICH-endowed villages generally suffer from common bottlenecks including aging inheritors, low resource-utilization efficiency, primary-level industrial structure and insufficient multi-stakeholder collaboration. These practical pain points are highly representative for a large number of similar ICH-rich mountainous villages across China.

Secondly, favourable policy and practical foundation. Zhejiang Province is a pilot region for ICH-empowered common prosperity. Local institutional innovations such as bamboo-forest circulation and collective-right reform provide realistic policy conditions for exploring the symbiotic development model of ICH and rural revitalization.

Thirdly, accessibility for empirical investigation and action research. Research teams maintain cooperative connections with local village collectives and rural cooperatives in this region, which supports field investigation, question-

naire distribution, in-depth interviews and small-scale iterative action-research practice.

1.7. Case Selection

This study adopts purposive sampling and selects Banshan Village in Baizhang Town, Yuhang District, Hangzhou as the research case. The village must meet the following inclusion criteria:

1) It is a typical hilly bamboo-forest village with distinctive local intangible cultural heritage resources, including provincial-level ICH Banshan Bamboo Weaving and municipal-level ICH Aoyu Dragon Lantern, together with more than 2000 mu of bamboo-forest resources. Its resource endowments and development predicaments can represent analogous villages.

2) The locality belongs to provincial-level pilot sites for bamboo-forest circulation and ICH-driven common prosperity, with complete supporting policy arrangements.

3) Local village collectives and cooperatives are willing to participate in field surveys and accept small-scale action-research pilots.

The concrete selection procedures are as follows: first, sort out the list of candidate villages matching hilly bamboo-forest and ICH-endowed features according to regional policy documents; second, conduct preliminary screening against the above-mentioned inclusion criteria and short-list Banshan Village; third, carry out pre-investigation and communication with village administrators to confirm the feasibility of questionnaire survey, interviews and pilot practice; fourth, complete ethical review and obtain informed consent from village-level stakeholders before formal data collection and fieldwork commence.

1.8. Data Organization and Analysis

This study collected three main categories of empirical data: 1) questionnaire responses from local permanent villagers; 2) verbatim transcripts of semi-structured interviews with 15 interviewees; 3) field notes, image materials, village collective ledgers and policy documents obtained from two rounds of on-site field investigations.

For questionnaire surveys, a total of 68 questionnaires are distributed to permanent villagers aged 18 and above in Banshan Village by household-to-household visits and fixed-point filling-in. Household respondents were selected using stratified convenience sampling proportional to the spatial distribution of village residential groups; fixed-point respondents were recruited at village activity centers, selecting villagers with different age brackets and livelihood backgrounds. After eliminating incomplete and carelessly-filled responses, 60 valid questionnaires are finally obtained, yielding an effective recovery rate of 88.2%. Basic demographic characteristics of the 60 questionnaire respondents are presented as follows: 32 males (53.3%) and 28 females (46.7%); age groups: 18 - 35 years old (11.7%), 36 - 60 years old (48.3%), above 60 years old (40.0%); main livelihood

types: farming/bamboo-forest management (51.7%), migrant work (28.3%), local service business (11.7%), retired or other (8.3%). The questionnaire contains 28 items covering five dimensions: ICH cognition and participation, industrial development and income, space-resource utilization, digital-skill application, and multi-agent participation evaluation, measured by five-point Likert scales. These five research dimensions were predefined according to literature review and theoretical deduction before questionnaire design. The overall Cronbach's α coefficient reaches 0.782 and the α value of each dimension exceeds 0.7, indicating acceptable questionnaire reliability for subsequent statistical analysis.

For qualitative interview data, purposive sampling is adopted for 15 participants, including 3 village committee cadres, 4 core ICH inheritors, 5 ordinary villagers, 2 township culture-and-tourism administrators and 1 local-operator representative. Each interview lasts 30 - 50 minutes. Recordings are transcribed into verbatim texts of approximately 32,000 Chinese characters, with interview outlines focusing on ICH inheritance status, industrial pain points, barriers of space utilization, digital-application difficulties and multi-stakeholder cooperation demands.

During field investigation, the research team conducted two rounds of on-site surveys, visiting Banshan Bamboo-Weaving inheritance sites, Aoyu Dragon Lantern workshops, idle-house concentrated blocks, core bamboo-forest zones, historical relics and Hangzhou-Xuancheng Ancient Road sections. Field observation notes, photographic materials, village ledgers and local policy documents are collected for cross-validation with questionnaire and interview data.

For qualitative data analysis, three-level grounded-theory coding procedures are applied to interview transcripts. In the open-coding phase, initial conceptual labels are extracted. In the axial-coding phase, categories emerged inductively from interview text. In the selective-coding phase, the five-dimensional analytical framework of "ICH revitalization—industrial integration—space revitalization—digital empowerment—multi-stakeholder collaboration" was further refined and consolidated based on the emergent axial-coding categories. To test inter-coder reliability, 20% of randomly-selected transcripts are coded independently by two researchers. The calculated Cohen's κ coefficient is 0.76, which falls within the acceptable range for coding consistency.

For quantitative data processing, SPSS 26.0 software is employed to perform descriptive statistics, calculating mean values, frequencies and proportions of each dimension to grasp villagers' overall cognition, participation level and evaluation characteristics.

The whole analytical workflow follows the sequence of qualitative grounded-theory coding, quantitative descriptive statistics, and cross-source triangulation. Qualitative coding reveals deep-seated dilemmas and internal interaction mechanisms; quantitative statistics offer population-group-level evidence; multi-source cross-validation between questionnaires, interviews and field materials improves the overall validity of empirical conclusions.

2. Current Situation Analysis and Practical Dilemmas of ICH Empowering Rural Revitalization in Banshan Village

Through field investigations, questionnaire surveys and in-depth interviews conducted in Banshan Village, combined with village-level statistical materials and local policy documents, this section systematically sorts out the realistic scenarios of ICH-driven rural revitalization in this hilly bamboo-forest village. It summarizes the existing favorable conditions for the integrated development of intangible cultural heritage and rural construction, extracts prominent practical dilemmas faced by the village, and further explores the root causes behind these bottlenecks.

2.1. Favorable Conditions for Integrated Development

From the perspective of resource endowment, Banshan Village of Baizhang Town, Hangzhou City boasts 2000-mu bamboo forests with a forest coverage rate of 92%. It preserves historical relics including Futuo Temple and the Hangzhou-Xuancheng Ancient Road. Local core intangible cultural heritage covers the provincial-level Banshan Bamboo Weaving and municipal-level Aoyu Dragon Lantern, alongside multiple living folk customs such as Banshan clay cat, kitchen-god paintings, Banshan-Empress-Goddess folk belief and Start-of-Summer rituals. The unique combination of bamboo-forest ecological resources and diversified ICH resources lays a solid material foundation for the practice of ICH symbiosis empowering rural revitalization. Rich tangible and intangible resources provide sufficient raw materials and cultural prototypes for developing cultural-creative products, folk experience projects and rural tourism business forms.

From the perspective of policy and institutional support, national and Zhejiang provincial policy frameworks offer top-level guarantees for local practice. Yuhang District has promoted the reform of collective forest-right system and innovated the bamboo-forest circulation mechanism by implementing the "three-right separation and two-level circulation" model. Village collectives uniformly collect scattered bamboo-forest resources from individual farmers and entrust them to district-level cultural-tourism groups for overall operation. As a key pilot area, Baizhang Town has realized the circulation of more than 46 000 mu of local bamboo forests, with a farmer participation rate exceeding 98%. The mechanism brings an annual income growth of 7.75 million CNY for villagers and 2.65 million CNY for village collectives [9]. In addition, Zhejiang Province's Xinhuo Action Plan for ICH inheritance and the pilot construction of "ICH Boosting Common Prosperity" create a favourable institutional environment for exploring the symbiotic development mode of intangible cultural heritage and rural economy [10].

From the perspective of market-demand opportunities, cultural-tourism consumption in the Hangzhou metropolitan area is shifting from simple sightseeing to in-depth cultural experience, research-and-study tourism and high-quality leisure activities. Local intangible cultural heritage has gradually become a core attraction of rural tourism. Tourists from surrounding cities show growing demand for bamboo-weaving handcraft experience, Aoyu Dragon Lantern folk perfor-

mances and rural study tours. The practical cases of similar villages such as Qingshan Village have also verified that the integrated development of intangible cultural heritage, design, digital media and rural tourism can effectively expand village-collective economy, which provides realistic reference for the mode construction of Banshan Village.

2.2. Key Practical Dilemmas

Banshan Village has abundant natural and cultural resources, yet multiple practical bottlenecks restrict the transformation from resource advantage to development advantage. Drawing on questionnaire responses, interview coding and field survey records, the practical dilemmas can be analyzed across five dimensions: ICH inheritance, industrial development, spatial utilization, digital technology and multi-agent collaboration.

In the dimension of ICH inheritance, the village faces the risk of inheritance interruption and limited capacity for market conversion. Interviews were conducted with four core ICH inheritors. Three of these four informants are over 60 years old, the youngest is aged 52, and no inheritors under 35 years old have been identified. Questionnaire data come from 60 valid responses collected among local villagers. Within this questionnaire sample, only 11.7% of respondents frequently join ICH-related activities, while 65.0% seldom or never participate. Many interview informants mentioned that bamboo weaving is treated merely as an elderly craft for making daily bamboo containers, and young residents show low willingness to learn the skill. Within the same valid questionnaire sample, 83.3% of respondents hold the view that Banshan bamboo weaving only carries practical usage value rather than substantial economic value. Performances of Aoyu Dragon Lantern are mostly limited to traditional festivals, with fewer than five public shows per year, lacking regular scenarios for living inheritance. The cultural connotation of local ICH is difficult to translate into market-oriented products and service projects.

In the dimension of industrial integration, the local industrial structure relies heavily on primary production, with underdeveloped secondary processing and weak tertiary industries. Based on the same set of 60 valid questionnaire responses, 86.7% of respondents obtain bamboo-forest income only through selling raw bamboo materials, and 13.3% take part in bamboo product processing. Village collective ledger records provide objective industrial statistics for the whole village. These records show that primary processed bamboo products account for nearly 90% of total bamboo output, while cultural and tourism-oriented products make up less than 10%. Only 16.7% of questionnaire respondents are engaged in cultural-tourism-related businesses. The village lacks mature study-tour products, themed homestays and folk performance projects. Tourists tend to stay briefly with low per-capita consumption. Homogenized competition is obvious, and local industries have limited capacity to create jobs and raise household income for villagers.

In the dimension of space utilization, a large stock of idle assets exists, while

revitalization faces multiple barriers. Village collective ledger records document 42 idle rural houses in the village, which represent 28.3% of all rural residential buildings. Among these idle houses, 57.1% have remained vacant for more than five years. Fragmented property-right relationships substantially raise renovation costs. The comprehensive utilization rate of local bamboo forests reaches only 28.7%. This indicator is calculated from village collective resource ledgers. The calculation divides the area of bamboo plots with annual commercial exploitation by the total exploitable bamboo area in the village. The numerator covers areas for raw bamboo harvesting, bamboo shoot collection and under-forest planting; the denominator excludes land within ecological red lines where commercial exploitation is prohibited. Most bamboo forests are only used for raw bamboo harvesting, while under-forest economy and bamboo-forest experience functions remain undeveloped. Existing physical spaces have not undergone themed transformation. Heritage sites including Futuo Temple and the Hangzhou-Xuancheng Ancient Road are treated merely as static landscapes and cannot accommodate new formats such as craft workshops and study-tour sites. Neither the cultural nor economic value of rural space has been fully unlocked.

In the dimension of digital empowerment, digital applications remain limited to basic publicity rather than forming a full-chain empowerment system. Drawing again from the 60 valid questionnaire responses, 55.0% of respondents can skillfully use smartphones to access the internet, but only 10.0% are able to independently publish short-video content, and merely 6.7% have experience with e-commerce sales. As many as 81.7% of respondents hope to sell local bamboo products online but lack practical operational skills. The village has not built a unified smart operation platform. Most short-video clips are casually shot without professional planning. Online traffic can hardly be converted into tangible economic returns, and the village suffers from an acute shortage of local digital operation professionals.

In the dimension of multi-agent collaboration, stakeholders are fragmented and benefit-linkage mechanisms are incomplete. Based on the 60 valid questionnaire responses, villagers' average rating of multi-agent participation in village development is only 2.31 on a five-point scale. Only 23.3% of respondents clearly understand how village collective income is spent, and merely 18.3% regard the current benefit distribution model as fair and reasonable. Interview materials show there is no regular discussion platform linking government departments, the village collective, ICH inheritors, ordinary villagers and market operators. The rights and obligations of different participants are ambiguous, and benefit distribution lacks transparency. Most villagers remain passive participants, with insufficient endogenous motivation to engage in rural construction.

These five-dimensional dilemmas are not isolated. They are mutually embedded and mutually reinforcing, and together create systemic constraints on rural development. For example, the aging of ICH inheritors restricts the development of cultural and creative products; weak product competitiveness further undermines the market foundation for online digital promotion; this in turn accelerates

youth out-migration and complicates multi-agent collaboration, forming a vicious circle.

2.3. In-Depth Analysis of Dilemma Causes

From the ideological perspective, some grassroots practical work still follows the static-protection thinking for intangible cultural heritage, attaching great importance to the integrity of cultural content while ignoring the realization of living value transformation. Rural-construction projects often promote cultural projects or industrial projects separately, lacking multi-factor systematic-collaboration thinking. Practitioners ignore the intrinsic interaction relations among ICH, industry, space, digital technology and stakeholders, resulting in the disconnection between construction practice and real-world village conditions.

From the resource-supply perspective, lightweight cultural-creative tools, space-renovation schemes and simple digital-operation solutions specially designed for grassroots villages are in short supply. Most available existing resources are developed for scenic spots and professional institutions. Compound talents who master ICH knowledge, industrial-operation capability and digital-technology skills are scarce. The deficiency of such supporting factors restricts the landing of systematic ICH symbiosis mode in Banshan Village.

From the institutional-construction perspective, regular multi-agent discussion and coordination systems have not been well established. Benefit-distribution systems lag behind practical demands and cannot fully guarantee the legitimate rights and interests of ICH inheritors and ordinary villagers. At the same time, phased-advancement design and risk-control mechanisms are absent in local practice. Consequently, two typical problems frequently emerge in actual work: pursuing quick success with impetuous attitudes or slow progress caused by insufficient institutional guarantee.

3. Construction and Internal Logic of the "Five Dimension Three Stage" Model for ICH Symbiosis

Drawing on symbiosis theory, collaborative governance theory, primary-secondary-tertiary industry integration theory and digital countryside theory, this section constructs a targeted theoretical model oriented to hilly bamboo-forest ICH-endowed villages in response to the systematic dilemmas identified in Banshan Village. The model consists of two core components: the horizontal "Five-Dimension Integration" multi-element collaborative system and the vertical "Three-Stage Progression" chronological implementation path. It further elaborates their inner symbiotic interaction mechanism, laying a theoretical foundation for subsequent practical countermeasures and phased implementation.

3.1. Core System Construction of "Five-Dimension Integration"

"Five-Dimension Integration" represents a horizontal symbiotic system consisting of five major factors. The five elements condition and support one another

and jointly constitute an organic whole for ICH empowering rural revitalization.

ICH as the Soul. Establish a three-tier living inheritance system: core-layer protection, derivative-layer transformation and innovation-layer operation. At the core layer, support inheritors and realize digital collection of ICH archives and craft documentation. At the derivative layer, develop cultural-creative products and folk-custom experience projects. At the innovation layer, carry out research-and-study activities and public performances to realize dynamic balance between protection and development and safeguard the core of rural culture.

Industry as the Vein. Based on bamboo-forest and ICH resources, break the limitations of primary raw-material processing and expand diversified business forms including bamboo cultural creativity, ICH performances, folk-custom research-and-study tours, themed homestays and hand-craft workshops. Promote the in-depth integration of primary, secondary and tertiary industries and build a complete industrial ecology of "bamboo-forest resources plus ICH intellectual property plus culture-tourism experience".

Space as the Carrier. Revitalize stock resources including idle rural houses, bamboo forests and ancient roads, and implement the "one house, one theme" renovation strategy. Transform idle spaces into bamboo-weaving workshops, ICH exhibition halls, research-and-study sites and themed homestays. Coordinate ecological, cultural, production and consumption spaces to provide physical carriers for industrial implementation.

Digital Technology as the Bond. Build a local data middle-platform and mini-program-based smart-operation system, integrating functions such as ICH display, research-and-study reservation, product sales, passenger-flow statistics and community-group operation. Carry out digital-literacy training for villagers and cultivate local short-video creators to realize the complete link of online communication, offline consumption and user operation.

Stakeholders as the Foundation. Construct the collaborative framework of "government guidance-professional operation-cooperative implementation". Implement the 4-3-3 benefit-distribution mechanism: 40% of profits for industrial reinvestment, 30% for village-collective public construction, and 30% for dividends distributed to villagers and ICH inheritors.

Operational specifications for the 4-3-3 benefit-sharing arrangement:

First, the scope of distributable profit is clearly defined as the annual operating revenue of cooperative-led projects minus direct operating costs, labor salaries, equipment depreciation, and statutory taxes and fees. Non-operating subsidies and special-purpose fiscal grants are excluded from this profit pool.

Second, rationality of the proportional allocation: The 40% reinvestment share guarantees iterative upgrading of products, spaces and digital platforms, sustaining long-term industrial development. The 30% collective share serves public welfare needs of the whole village, avoiding pure market-oriented profit-seeking. The remaining 30% dividend pool balances the interests of ordinary villagers and core ICH inheritors, which responds to the dual goals of rural inclusive benefit sharing

and incentive for cultural inheritance.

Third, dividend-entitlement criteria: Within the 30% dividend pool, 60% is allocated to ordinary villagers according to their formal equity shares in the Banshan ICH Common-Prosperity Cooperative; shareholding records in the cooperative register serve as the primary judging basis for ordinary villagers' dividend qualifications. The remaining 40% of the dividend pool is assigned to ICH inheritors, whose dividend entitlements are determined by annual performance assessment results, including actual workload in craft inheritance, cultural-creative product development and folk-custom performances. Inheritors must hold formal inheritor certification and complete the annual agreed inheritance tasks to obtain dividend eligibility.

Clarify rights and obligations of all parties, guarantee reasonable benefits for relevant groups and activate rural endogenous motivation.

3.2. Phased Progression Path of "Three-Stage Progression"

"Three-Stage Progression" stands for the phased-advancement implementation path along the vertical time axis, complying with the objective law of rural development evolving from foundation-building to quality-improvement and then to outward radiation.

The Foundation-Building Phase (0 - 1 year) focuses on resource sorting and institutional construction instead of large-scale commercialization. Core tasks include completing ICH census and digital archiving, figuring out actual conditions and property rights of bamboo forests and idle rural houses, building multi-agent communication-and-collaboration platforms, conducting digital-skill and operational-capacity training for villagers and inheritors, and finishing the construction of basic versions of digital platforms.

The Quality-Improvement Phase (1 - 3 years) centers on business-form cultivation and local-brand building. Core tasks include launching ICH workshops, developing cultural-creative and research-and-study product series, completing themed renovation of key idle spaces, launching the full-function smart-operation mini-program, holding the Banshan ICH Cultural Festival to shape local cultural-tourism brands, refining and implementing benefit-distribution regulations and realizing preliminary value realization of projects.

The Radiation-Output Phase (3 - 5 years) emphasizes model summarization, replication and demonstration promotion. Core tasks include systematically sorting practical experiences in Banshan Village, forming standardized replicable implementation schemes, exporting operational standards, building a regional ICH common-prosperity union to drive the development of surrounding similar villages, realizing full-chain revenue from research-and-study tourism, e-commerce and cultural-tourism and giving full play to regional demonstration effects.

3.3. Internal Symbiotic Logic of the Model

The "Five-Dimension" system represents horizontal multi-factor collaboration,

and "Three-Stage Progression" stands for vertical time-sequence advancement. Horizontally, the five subsystems support each other: ICH serves as the core, industry as the implementation grip, space as the physical carrier, digital technology as the connecting bond, and stakeholders as the institutional guarantee. Vertically, the three phases advance step by step with continuously consolidated foundations and upgraded development levels. Taking ICH symbiosis as the underlying logic and digital empowerment as an important catalyst, this model promotes the in-depth coupling of cultural protection, industrial development, space renewal, digital operation and multi-agent good governance, and achieves the system gain of "1+1>2" through multi-factor collaboration, so as to realize multiple goals including living cultural inheritance, industrial quality improvement, villagers' income growth and rural governance upgrading.

4. Practical Path and Implementation Scheme of the "Five Dimension Three Stage" Model

On the basis of the theoretical framework constructed in the previous chapter, this section transforms the abstract symbiosis model into operable practical measures and chronological implementation workflows. It first puts forward targeted collaborative countermeasures covering ICH inheritance, industrial upgrading, space revitalization, digital empowerment and multi-agent governance. Then it specifies detailed step-by-step arrangements for the three-phase implementation. Finally, small-scale on-site action-research pilot work is carried out in Banshan Village to test the real-world feasibility and preliminary practical effects of the whole set of solutions.

4.1. Specific Implementation Countermeasures for Five-Dimension Collaboration

For ICH revitalization, improve the support system for inheritors and provide living subsidies and craft-inheritance allowances. Use VR and high-definition videos to fully record complete craft procedures of bamboo weaving and Aoyu Dragon Lantern. Promote ICH into schools and communities and organize regular experience activities. Build a youth entrepreneurship-incubation platform to attract young people to participate in ICH undertakings.

For industrial upgrading, develop a complete product matrix covering bamboo-weaving cultural-creative daily necessities and Aoyu-dragon-lantern-themed peripheral products. Build ICH-themed homestays, research-and-study routes and immersive folk-custom performances. Promote the transformation of bamboo industry from raw-material supply to the whole-chain mode of "production-processing-culture-tourism-cultural-creativity".

For space revitalization, sort out property rights of idle rural houses and revitalize stock resources via multiple approaches including unified collection by village collectives and cooperative renovation. Renovate workshops, research-and-study classrooms, cultural-creative stores and themed homestays following the

"one house, one theme" principle. Build ecological research-and-study trails and ICH-experience routes relying on bamboo forests and the Hangzhou-Xuancheng Ancient Road.

For digital empowerment, launch the "Banshan ICH" WeChat mini-program integrating display, reservation, ticketing and community-group-operation functions. Organize regular training courses on short-video operation and live-stream sales, cultivate local content creators and realize traffic conversion from short-video platforms to offline consumption.

For multi-agent collaboration, establish the Banshan ICH Common-Prosperity Cooperative with shares held by village collectives, ICH inheritors, villagers and operators. Set up a monthly discussion-and-coordination mechanism for collective decision-making on major issues. Implement the 4-3-3 benefit-distribution system and formulate incentive mechanisms for villager participation to fully mobilize enthusiasm from all parties.

4.2. Phased Implementation Procedures of Three-Stage Progression

In the foundation-building phase (Year 1), complete the full-scale census of ICH resources including Banshan bamboo weaving and Aoyu Dragon Lantern and establish standardized digital archives. Fully investigate idle-rural-house and bamboo-forest resources across the village and sort out property-right relations. Set up the Banshan ICH Common-Prosperity Cooperative and build regular multi-agent discussion-and-coordination mechanisms. Launch the first-batch digital-skill and ICH-craft training for villagers and inheritors, and initiate the phase-I development of the "Banshan ICH" mini-program to complete basic-function construction. In this phase, resource inventory and institutional construction are prioritized instead of pursuing rapid commercial returns, focusing on removing institutional, resource and technical barriers for subsequent development.

In the quality-improvement phase (Year 2 - 3), launch 2 - 3 ICH-themed workshops and roll out the first batch of bamboo-weaving cultural-creative product series. Complete themed renovation of 3 - 5 idle rural houses and transform them into themed homestays and research-and-study practical bases. The "Banshan ICH" mini-program is fully online with e-commerce sales and activity-reservation modules activated. Hold the first Banshan ICH Cultural Festival to build the local ICH cultural-tourism intellectual property. Refine the detailed rules for cooperative benefit distribution to guarantee the implementation of dividend mechanisms and achieve gradually stable operating profits for projects. Core tasks in this phase are business-form implementation, local-brand building and forming sustainable self-hematopoietic capacities.

In the radiation-output phase (Year 4 - 5), systematically sort out complete practical materials of Banshan Village and compile the standardized operation manual for the "Five-Dimension-Three-Stage" model to extract replicable experiences. Carry out common-prosperity cooperation with 3 - 5 surrounding similar

villages, export model experiences and operational methods, and build a regional ICH research-and-study alliance and e-commerce supply-chain system. Apply for provincial-level rural-revitalization demonstration cases to expand regional influences and transform individual practices in Banshan Village into demonstration samples for hilly bamboo-forest ICH-endowed villages.

4.3. Action Research Pilot and Preliminary Outcomes

In cooperation with the village committee of Banshan Village, this study carried out small-scale action-research pilot practices lasting six months, selecting three scenarios: renovation of idle rural houses, small-scale operation of ICH workshops and short-video-content communication for practical verification.

From the perspective of ICH creation, lightweight AI tools were adopted to assist bamboo-weaving pattern design and lower technical thresholds for pattern innovation. The first batch of 12 cultural-creative samples were produced and well received by channel distributors.

From the perspective of digital communication, a village-level short-video account was operated, releasing 18 short-video works themed on Aoyu Dragon Lantern folk customs and bamboo-forest scenery. The maximum single-video play count exceeded 52,000. Weekend tourist consultation volume rose by approximately 32%, calculated from village reception log records. The baseline data come from the corresponding six-month period prior to pilot implementation.

From the perspective of space-renovation pilot, two ICH-themed homestays were put into trial operation. The two homestays were renovated from two separate idle rural buildings. Calculated from homestay booking ledgers using available guest nights as the statistical denominator, the average weekend and holiday occupancy rate reached 71.4%. The 25% accommodation premium is benchmarked against OTA listed prices of nearby ordinary homestays with similar scale and location.

Small-scale pilot outcomes preliminarily verify the practical operability of the tested pilot components. Lightweight digital tools, themed space renovation and multi-agent-collaboration paths can effectively activate various rural resources.

5. Conclusions

Taking Banshan Village in Hangzhou as the case, this paper constructs a "Five-Dimension Integration—Three-Stage Progression" analytical framework for ICH-empowered rural revitalization based on symbiosis theory. Evidence from questionnaires, in-depth interviews and field investigations shows that the dilemmas of hilly ICH villages are systematic contradictions arising from intertwined multiple factors, and single-dimensional protection or exploitation strategies cannot fundamentally resolve rural development bottlenecks. Horizontally, this study establishes a symbiotic collaborative system covering ICH, industry, space, digital technology and multi-stakeholders. Vertically, a three-stage progressive path consisting of foundation planning, quality improvement and radiation spillover is de-

signed. This study only selects partial modules of the framework for small-scale action research, and conclusions can only support the preliminary feasibility judgment of the components actually tested.

This study has notable limitations. The pilot has a short duration and limited scope. The effectiveness of full three-stage implementation, villagers' income growth effect and cross-village transferability of the complete model remain unverified. In addition, purposive case selection is adopted, and Banshan Village receives strong local policy support. The unique contextual features of the case constrain the generalizability of the findings. Long-term tracking and multi-case comparative research can be carried out in follow-up studies to further explore the micro-mechanisms of digital empowerment in rural areas. It is hoped that the phased pilot experience of this research can offer references for living ICH inheritance practices of similar hilly ICH villages in China.

Conflicts of Interest

The authors declare no conflicts of interest.

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