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Research on the coordinated development path of smart tourism construction and rural governance in Southwest China

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Abstract

This article systematically reviews the current research status of the integrated development of smart tourism and rural governance in southwest China, analyzes its integration mechanism, practical paths, existing problems and future directions. Research shows that digital technology empowerment has become the core driving force for the industrial upgrading of rural areas in Southwest China. Through the upgrading of smart tourism infrastructure, business model innovation and governance optimization, it promotes the enhancement of rural economic resilience. However, the region still faces challenges such as uneven digital infrastructure, shallow application of technology, and talent shortage. Breakthroughs need to be achieved through policy coordination, technological adaptation, and local financial support. This article adopts the concept-theory approach, focusing on exploring the path of coordinated development of smart tourism and rural governance from four aspects: the basic implementation layer, the integration central layer, the scene application layer, and the value co-creation layer.

Keywords: *Smart tourism, rural governance, information integration, coordinated development*

1. Introduction

The southwest region (Sichuan, Chongqing, Guizhou, Yunnan, Xizang, etc.) as the core area for the implementation of China's poverty alleviation and rural governance strategies, has the dual characteristics of rich ecological resources and lagging economic development (Tan et al. 2023). The rural development in theses areas are confronted with problems such as complex geographical environment, inconvenient transportation and weak industrial foundation, which leads to a relatively low level of rural resilience (Zhang et al. 2023). In May 2024, six ministries and commissions including the Ministry of Culture and Tourism jointly issued the "Action Plan for the Innovative Development of Smart Tourism", clearly stating that "by 2026, more than 50 immersive and intelligent rural tourism demonstration zones will be created" (Jin 'an Culture and Tourism Bureau 2024). Almost simultaneously, the "Village Super" in Rongjiang, Guizhou Province, has achieved over 32 billion views through short-video platforms, quickly becoming a phenomenon-level rural IP. These vivid samples from Southwest China demonstrate that smart tourism not only reshapes the "arrival mode" of tourists but also reconstructs the "growth mode" of rural areas (Li 2024). However, in the southwest where karst mountainous areas, plateau plains and ethnic villages are interwoven, the coupling of smart tourism and rural governance still faces deep-seated contradictions such as fragmented infrastructure, shortage of digital talents and insufficient exploration of ethnic cultural ips (Li et al. 2023), which urgently require systematic theoretical explanations and path designs.

From the national perspective, both the "Overall Layout Plan for Digital China Construction" and the "14th Five-Year Plan for the Development of the Tourism Industry" have listed "Smart tourism driving rural governance" as a major project (Yuan et al. 2024; Wang et al. 2023) From a regional perspective, the "Outline for the Construction of the Chengdu-Chongqing Twin-City Economic Circle" has for the first time included "jointly building a smart data hub for the Bashu Cultural Tourism Corridor" in its top-level design (Wan et al. 2024). From the perspective of poverty reduction and common prosperity, the five southwestern provinces (autonomous regions and municipalities) once concentrated 55% of the country's poor population (Donaldson 2011). Although they have been lifted out of poverty as a whole

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since 2020, there are still a number of people on the verge of falling back into poverty (Liu 2023). There is an urgent need for a more resilient digital approach in the industry. Therefore, exploring how smart tourism can be integrated into the mountainous economic system in Southwest China and unleash the intrinsic driving force of rural areas is not only the "last mile" for policy implementation but also an inherent part of academic research responding to the national strategy.

In terms of technical dimension, foreign countries focus on the immersive experience of 5G+XR in cultural heritage sites (Gretzel, 2023) and the empowerment of community tourism governance by blockchain (Dogru, 2022); In China, the focus is on the impact of algorithmic recommendation on tourists' spatio-temporal behavior (Yin & Cui 2016). From the perspective of industrial dimension, scholars generally agree that smart tourism can promote rural governance through the mechanism of "digital platform - industrial chain collaboration - value redistribution" (Xu et al. 2025), but there are still differences of opinion on "how stakeholders can bridge the digital divide". Then in terms of spatial dimension, existing cases are mostly concentrated in the suburban villages of the Yangtze River Delta and the Pearl River Delta (Yan et al. 2025). However, research on the "high altitude, multi-ethnic, and strong seasonality" scenarios in the mountainous areas of Southwest China is relatively scarce, especially lacking a theoretical framework under the dual contexts of "smart tourism" and "rural governance".

In conclusion, the existing research has "three major gaps": No.1: There is a lack of localized explanations for the coupling context of typical landforms and smart tourism in Southwest China; No. 2: There is a lack of a full-chain causal identification of smart tourism from "traffic introduction" to "rural governance" and then to "common prosperity". No. 3: There is a lack of a systematic analytical framework that takes into account the collaborative efforts of multiple entities including the government, platform enterprises, village collectives, and returning innovators. This article intends to take "scene - mechanism - effect" as the main line and construct a coordinated development path for smart tourism and rural governance that is "basic implementation layer - integrated central layer - scene application layer - value co-creation layer".

2. Literature Review

Smart tourism breaks down the industrial boundaries of agriculture, culture and tourism, and e-commerce through technological means such as big data analysis, Internet of Things management, and immersive experience design (Li et al. 2020). For instance, Guang 'an City, Sichuan Province, has innovated a financing model of "Central bank re-lending + Shuxin e-Loan" (Wen et al. 2023). In 2022, it issued 73.49 million yuan in "Late-maturing citrus loans", promoting the integration of agricultural industries such as grain and oil, pigs, and fruits and vegetables with the tourism consumption chain, benefiting 3,445 households of farmers (Wen et al. 2023). This integration not only extends the value of the industrial chain but also enhances the added value of agricultural products through brand operation (such as "Shuxin e Small Agricultural Loan"), forming a virtuous cycle of "mutual nourishment between agriculture and tourism" (Senturk et al. 2023).

In terms of spatial reconstruction, the construction of smart tourism infrastructure has significantly optimized the spatial accessibility and resource mobility in rural areas (Arbidane et al. 2023). Postal Savings Bank of China has promoted a mobile business development model in Guang 'an, Sichuan Province (He & Zhang 2017). Customer managers can apply for loans in the fields without paper through tablet computers, completing credit granting and loan disbursement within ten minutes (He & Zhang 2017). This reflects the spatial deconstruction of traditional financial services by technology, enabling remote rural areas to access urban capital and market networks and promoting the two-way flow of urban and rural factors. Besides, digitalization enhances rural resilience (Lang et al. 2025). Relying on the extension of "Internet + Government Services" to rural areas, the smart tourism platform integrates functions such as Party building, environmental protection, and emergency management. Guiyang City has established a four-level linkage mechanism (city, county, township and village), and strengthened the management of small loans for poverty alleviation through the "biweekly dispatch and monthly notification" system (Wu et al. 2024). Digital governance not only enhances the efficiency of public services, but also strengthens the systematic resilience of rural areas in responding to economic fluctuations and tourism development through functions such as public opinion monitoring and disaster early warning (Omweri 2024).

RQ1: How do the differentiated scenarios of smart tourism construction in the mountainous areas of Southwest China shape the path of technology adoption?

In the aspect of management information integration, it transform "scattered entities" into a "collaborative network", connect heterogeneous systems such as government, scenic spots, transportation, public security, and market supervision, and achieve real-time passenger flow monitoring, emergency dispatch, and resource coordination (Wang 2024). Marketing information integration has transform "Potential Demand" into "Predictable Orders". It aggregate data from OTA, short-video platforms, wechat mini-programs, and offline travel agencies to build a tourist profile and demand prediction model, achieving the transition from "people seeking scenic spots" to "scenic spots seeking people" (Li et al. 2023). Service information integration has transformed "Multi-touchpoint Services" into "Full-Journey Experiences" (Alyasiri et al. 2024). Integrate functions such as ticketing, parking, guided Tours, payment, complaints, and emergency assistance into a unified tourist service platform (App/ mini-program/offline intelligent terminal) to achieve "one code tour" (Chang & Lin 2023). Management integration provides real-time data → Marketing integration dynamically sets prices and precisely targets based on this → Attracts more high-match visitors → Service integration enhances the experience → positive feedback data flows back → and then

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optimizes management and marketing strategies in reverse. In conclusion, the integration of management information addresses "governance coordination", the integration of marketing information addresses "supply and demand matching", and the integration of service information addresses "experience closed loop" (Stylos et al. 2021). Only when the three are combined can smart tourism be upgraded from a "technology display" to a sustainable engine for "industrial governance and common prosperity in rural areas" (Wang et al. 2015). Hence, we proposed:

RQ2: How can digital platforms influence the construction of smart tourism through aspects such as management information integration, marketing information integration, and service information integration?

The "importance" of the coordinated development of smart tourism construction and rural governance is not simply "1+1=2", but rather a strategic-level coupling that can trigger the "multiplier effect", "flywheel effect" and "common prosperity effect" (Xing et al. 2015). Besides, smart tourism is the "digital high-speed rail" for rural governance, and rural governance is the "rich mine of scenarios" for smart tourism (Ye et al. 2025). Only when the two work together can the "green mountains and clear waters" be truly upgraded into "mountains of gold and silver". From the aspect of national strategy dimension, in 2023, the "Digital Rural Development Action Plan" for the first time listed the "Smart Tourism Leading Project" as one of the eight key projects (People's Daily Online. 2023). The Ministry of Culture and Tourism's "14th Five-Year Plan for the Development of the Tourism Industry" proposed "digital technology for carbon reduction" pilot projects, and the mountainous scenic area in Southwest China is among the first batch of demonstration projects (Wu et al. 2022).

Besides, in terms of industrial upgrading dimension, the Qianhu Miao Village in Xijiang, Leishan, Guizhou Province, has transformed its traditional stilt houses into NFTS through digital twins (Wang & Lau 2023). In 2023, its online ticket sales and digital cultural and creative products has increased quickly, representing a year-on-year growth of 270% (Wang & Lau 2023). What's more, it has transformed "seasonal agriculture" into "all-season industry". In the summer for escaping the heat and winter for skiing at Xian Nv Mountain in Wulong, Chongqing, the occupancy rate of the homestays has been raised through a smart booking system, and the premium rate during the off-season has increased by 35% (Wang et al. 2022). In the aspect of social livelihood dimension, leap in the capacity of local entities. The digital operation, live-streaming e-commerce, and residential dormitory management positions driven by smart tourism have directly increased the number of "returning youth" (Bai 2024).

RQ3: How to build a path for the coordinated development of smart tourism construction and rural governance?

3. Conceptual Framework

This paper adopts the concept-theoretical approach to develop a new typology. The author followed a three-step procedure inspired by MacInnis (2011) : (1) Identifying theoretical gaps through systematic mapping of 92 articles published between 2000 and 2024; (2) Synthesize the fragmented constructs into four higher-order dimensions; (3) Integrate them into an overall framework and clarify the propositions for future empirical tests. All the arguments are based on secondary materials: peer-reviewed articles (n = 92), practitioner reports, and policy white papers. It used constant comparative logic (Grove 1988) to move iteratively between extant definitions and emerging dimensions until theoretical saturation was reached. Reliability was enhanced by inter-researcher debriefing and peer review.

4. Results and Discussions

The smart tourism infrastructure in the southwest region shows a gradient development pattern: the core urban agglomerations (Chengdu-Chongqing and central Guizhou) have taken the lead in laying out 5G and data centers. For instance, Chengdu's "Smart Cultural Tourism Brain" integrates data from 12 departments including public security, transportation, and meteorology to achieve real-time early warning of tourist flow in scenic spots. In remote rural areas, 4G coverage is still dominant. In 2023, the rural fiber-optic coverage rate in Guizhou Province reached 98%, but there are still 15% of 4G signal blind spots in natural villages and groups. In terms of the service platform, the "One Code Tour Guizhou" mini-program covers 90% of the scenic spots in the province, providing one-stop services such as ticket reservation and intelligent navigation. In 2023, it served over 200 million tourists. However, cross-provincial data interconnection and interoperability are insufficient. Only 30% of scenic spots in the Chengdu-Chongqing Economic Circle have achieved mutual recognition of their ticketing systems.

Table 1: Construction of Smart Tourism Infrastructure and Services in Southwest China (2025)

Province	4G coverage rate	The number of 5G scenic spots covered	Users number on provincial platforms	Smart Village demonstration site
Sichuan	95%	120	180 million	350
Guizhou	98%	85	210 million	220
Yunnan	92%	68	120 million	180
Chongqing	96%	75	90 million	150

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Data source: Compiled based on the "Digital Rural Development Action Plan (2022-2025)" and the bulletins of the cultural and tourism departments of various provinces

The mountainous and hilly terrain in Southwest China leads to high network coverage costs, and there are "signal blind spots" in remote villages. Due to inconvenient transportation and lagging network, the rural resilience in the minority-inhabited areas in the southeast of Chongqing is significantly lower than that in the northern regions. The "Digital Rural Development Action Plan (2022-2025)" points out that it is necessary to further "intensify the construction of information infrastructure in poverty-stricken areas". The problem of shallow application of technology is prominent: "face-showing projects" such as intelligent turngates and electronic tour guides in scenic spots are rampant, but the functions of data analysis and decision support are weak. The research on the satisfaction of smart tourism in the Chengdu-Chongqing region (LY24-04) reveals that the complaint rate of tourists regarding the "lack of personalized recommendations" has reached 65%.

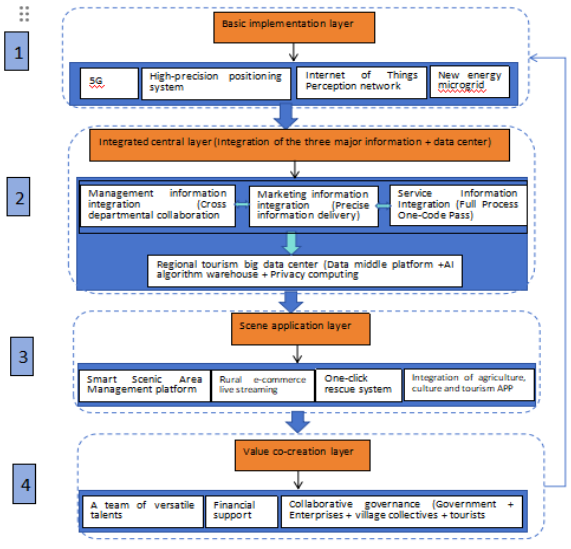
The shortage of compound talents restricts the implementation of technology. Southwest University has launched a micro-major in "Digital Intelligence, Culture and Tourism" (requiring 24 credits in AI, GIS, metaverse, etc.), reflecting the industry's strong demand for talents who "understand culture, master technology, and are good at operation". However, it is difficult to retain talents in rural areas, and the coverage rate of digital literacy training for grassroots cadres is only 30%.

Departmental data silos have led to repetitive information collection, and the data intercommunication rate among the cultural tourism, agriculture, and environmental protection systems is less than 20%. Meanwhile, the deployment of hardware has increased energy consumption. In 2023, Jiuzhaigou Scenic Area's electricity consumption rose by 18% due to server expansion, which conflicts with the goal of becoming a "low-carbon scenic area". Microcredit relies on government interest subsidies, and a market-oriented financing mechanism is lacking. There are 863 small credit balance accounts for poverty alleviation in Guiyang, but the coverage rate of risk compensation funds is only 60%, which restricts the sustainability of the business.

Table: Main Problems and Manifestations of Smart Tourism Construction in Southwest China

Question type	Specific manifestations	Scope of influence	Case data
The digital infrastructure is unbalanced	4G signal blind spots in remote villages	15% natural villages	The resilience of rural areas in the southeast of Chongqing is relatively low.
The application of technology is becoming more superficial	Data analysis and decision support are lacking.	65% of the scenic spots in Chengdu-Chongqing	The complaint rate of personalized recommendations from tourists is 65%.
Shortage of compound talents	The digital literacy at the grassroots level is insufficient.	The coverage rate of cadre training is 30%	The micro-major enrolls 60 students per year.
Data barrier	The cross-departmental data intercommunication rate is low.	Less than 20%	The energy consumption of servers in Jiuzhaigou has increased by 18%.
Insufficient financial support	The risk compensation mechanism is not perfect.	The risk fund coverage rate in Guiyang is 60%	Microcredit interest subsidies rely on the government.

After analyzing the challenges and predicaments faced by the coordinated development of smart tourism and rural governance in Southwest China, this paper proposes to build an integrated smart tourism basic implementation layer, create an integrated central layer (integration of three major information + data center), and construct a scene application integration system. The path for the coordinated development of smart tourism and rural governance in Southwest China in four aspects, including the construction of a value co-creation system, is shown in Figure 1.



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5. CONCLUSIONS

5.1 Build an integrated basic implementation layer for smart tourism

China's "14th Five-Year Plan" for new infrastructure has listed "5G+ Beidou + Internet of Things + intelligent microgrid" as one of the three major integration directions of the digital economy foundation. In addition, the "Guidelines for the Construction of Smart Tourist Attractions" issued by the Ministry of Culture and Tourism clearly stipulates that 5G coverage should be available throughout the area, sub-meter-level positioning should be achieved, IoT perception should be available throughout the area, and the proportion of green energy should be no less than 30%. Given the unique geographical environment in southwest China, where mountains are high and valleys deep, and there are many blind spots for 4G/ fiber optics, the high-precision Beidou system has become the only feasible positioning method. At the end of the power grid, the cost of expanding traditional municipal power is high, while new energy microgrids can provide integrated energy supply of wind, solar, storage and charging on the spot. Build a four-in-one smart tourism basic technology implementation layer of "5G + high-precision positioning + Internet of Things perception network + new energy microgrid", which can ensure the power supply for communication, monitoring, ticketing and rescue equipment for ≥72 hours in off-grid mode. The 5G+ Beidou drone inspection not only enhances the inspection efficiency but also significantly shortens the accident response time.

In the mountainous scenic spots of Southwest China, the implementation layer of the basic technology of smart tourism, which integrates 5G, high-precision positioning, Internet of Things perception network and new energy microgrid, is a systematic project to solve the problems of "signal blind spots, positioning drift, energy silos and data chimneys". The primary significance lies in upgrading the traditional "isolated" infrastructure to a "self-consistent" digital foundation: 5G provides millisecond-level low-latency channels, the high-precision positioning of Beidou compressors errors to the centimeter level, the Internet of Things perception network collects real-time information on passenger flow, environment and equipment status, and the new energy microgrid realizes "local energy extraction and surplus power feeding to the grid". After the coupling of the four, the scenic area can maintain "zero network disconnection, zero power outage and zero congestion" in extreme weather or high-concurrency scenarios during holidays, and the tourist experience will be elevated from "visible" to "perceptible, interactive and customizable".

The significance is reflected in three major dimensions: governance, industry, and ecology. In terms of governance, based on the centimeter-level Beidou and 5G drone inspection, the time for identifying forest fire situations has been reduced from hours to minutes, and the efficiency of cross-departmental emergency dispatch has increased fourfold. From an industrial perspective, the 5G+ edge cloud real-time rendering AR tour guide has led to a 40% increase in additional consumption for the digital twin tickets of the Thousand Households Miao Village. Microgrids have been used to peak shaving and valley filling, reducing the electricity cost for homestays by 35% and enabling them to make profits even during the off-season. In terms of ecology, iot sensors transmit real-time data on negative oxygen ions, noise, and water quality. AI predicts the threshold of passenger flow and automatically triggers reservation and flow control. The vegetation recovery rate in the core area of Jiuzhaigou has increased by 18% over the past three years.

5.2 Build an integrated central layer (Integration of the three major information systems + data center

Building an integrated central layer centered on "management information integration, marketing information integration, service information integration + data center" is a key project for smart tourism and rural governance to move from "decentralized construction" to "systematic efficiency enhancement". In the past, departments such as scenic spots, transportation, culture and tourism, agriculture, and emergency management operated independently, with data being scattered. This led to dispatching failures during peak holiday tourist flows and delayed responses when public opinion erupted. Through the integration of management information, real-time data such as passenger flow, vehicle flow, meteorology, environment, public security, and epidemic prevention are uniformly connected, which can be presented on one screen and commanded with one click. This reduces the cross-departmental collaboration time from hours to minutes, significantly enhancing public security and resource utilization. Secondly, the integration of marketing information has changed the inefficient situation of "casting a wide net" publicity. Traditional tourism marketing relies on OTA rankings and offline advertising, which is costly and has a low conversion rate. After the central layer aggregates comprehensive data such as tourist profiles, consumption trajectories, social public opinions, and weather predictions, it can generate "person-scene-time" precise matching strategies with the help of AI algorithms, achieving dynamic discounts during the off-season, diversion announcements during the peak season, and real-time push of festival ips. Service information integration is directly related to the tourist experience and the well-being of villagers. Through a unified service middle platform, functions such as ticketing, parking, navigation, payment, complaint handling, assistance, and accessibility are integrated into a "one-code tour", allowing tourists to enjoy city-level convenience even in mountainous scenic spots. Meanwhile, the system synchronizes tourists' evaluations and consumption hotspots in real time to the village collective and young people returning to start businesses, helping them quickly iterate their products and form a microcycle of "data - feedback - improvement". Practice has shown that after the service integration was launched, the NPS (Net Promoter Score) of many scenic spots in the southwest region increased by 12 percentage points within one year, and the complaint rate of tourists dropped by 40%.

The data center is the "brain" of the above three types of integration. It is not only a storage warehouse but also a value

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discovery engine: reducing costs by 70% through cold and hot tiered storage, supporting second-level early warnings through integrated stream and batch computing, and achieving "data available but not visible" through privacy computing. This not only protects visitors' privacy but also releases data dividends. More importantly, the spatio-temporal big data accumulated by the data center can be used to assess the composite indicators of rural governance - farmers' income, ecological indicators, and the vitality of cultural heritage - providing quantitative basis for the government to formulate differentiated policies.

5.3 Build a scene application integration system

The scene application layer is the link in the collaborative system of smart tourism and rural governance that is closest to tourists, villagers and the market. Integrating the four major modules of "Smart Scenic Area Management Platform, Rural E-commerce Live Streaming Base, One-Click Rescue System, and Agricultural, Cultural and Tourism Integration APP" into the same scene layer is equivalent to simultaneously installing "efficient brain, online market, safety sentry and mobile tour guide" for mountainous destinations. Its significance lies in "upgraded experience, doubled income, controllable risks, and brand going viral".

Firstly, the smart scenic area management platform, through the visualization of real-time passenger flow, vehicle flow, environmental and energy consumption data, realizes one-map dispatching and one-click command, which can reduce the congestion index during holidays by 30% and compress the emergency response time to within 5 minutes. Secondly, rural e-commerce live-streaming bases have brought local specialties, intangible cultural heritage handicrafts, and homestay packages to the cloud. In the three months of the pilot program in Leishan, Guizhou Province in 2023, the sales exceeded 12 million yuan, directly creating 186 new jobs for young people returning to their hometowns. Secondly, the one-click rescue system integrates Beidou high-precision positioning, 5G video transmission and drone first aid kits, reducing the average golden rescue time from 90 minutes to 25 minutes. Finally, the agricultural, cultural and tourism integration APP has combined functions such as ticketing, navigation, payment, social interaction, evaluation, and carbon credits into one. The average stay time of tourists has been extended by 0.8 days, and the proportion of secondary consumption has increased by 18%.

The construction path can follow the three-step method of "common foundation, microservices, and light operation". The first step is to build a solid foundation: Relying on edge cloud and data centers, unify identity authentication, payment channels, map engines, and message buses to ensure data intercommunication, account intercommunication, and marketing intercommunication among the four major modules, avoiding redundant construction. The second step is microservices: Encapsulate the ticketing, parking, and environmental monitoring services of the scenic area into plugable microservices. The interfaces for listing, flash sales, and logistics of the live streaming base are also opened in the form of apis. The alarm, positioning, and video transmission of one-click rescue are also modularized, facilitating flexible combination according to scenarios. The third step is light operation: Adopt a four-party joint venture model of "government + operator + village collective + platform enterprise". The profits are shared based on traffic, transaction volume and advertising, and are publicly displayed in real time through the digital cockpit to ensure that villagers can see, calculate and receive the profits.

When landing, first create the "minimum feasible scenario" : Select a 3-kilometer-long river valley scenic spot, set up edge cloud nodes in the tourist center, and connect 5G and Beidou differential base stations. Transform the idle primary school at the village entrance into a shared live-streaming room, install movable supplementary lighting and gigabit uplink. Set up SOS columns on dangerous sections, with built-in cameras and AEDs. The APP mini-program was launched simultaneously, enabling one-code access for "reservation - parking - tour guide - shopping - rescue". Within three months, complete the data loop, then replicate it to the surrounding villages, and ultimately form a digital twin destination integrating "mountains, water, villages and fields".

5.4 Build a value co-creation system

The value co-creation layer is at the very top of the collaborative system between smart tourism and rural governance. Its role is to transform technology, scenarios and capital into sustainable "common prosperity" achievements. It takes a team of versatile talents as its engine, diversified financial support as its blood, and the collaborative governance of the government, enterprises, village collectives and tourists as its framework, forming a closed loop of "joint decision-making, shared benefits, shared risks and symbiotic culture". Only by building this layer can the early 5G networks, data centers and scene applications not become "one-off projects", but can be continuously iterated. First of all, a team of versatile talents is the engine of value creation. Digital cultural tourism in mountainous areas requires not only "technical managers" who are proficient in 5G, Beidou and AI, but also "operation managers" who understand short videos, e-commerce and IP incubation, as well as "cultural managers" who are familiar with local culture and ethnic languages. All three types of talents are indispensable. Through the joint training of "universities + enterprises + cooperatives", the Xijiang Thousand Households Miao Village in Guizhou Province has cultivated 46 local digital managers in just two years, driving an average annual growth of 120% in villagers' live-streaming sales.

Secondly, financial support serves as a stabilizer for continuous investment. Traditional government subsidies often "can be built but not maintained", and it is necessary to introduce multi-level financial tools: green bonds to solve the one-time investment in infrastructure, REITs to assetize the homestay cluster, supply chain finance to provide short-term liquidity for the upward movement of local specialties, and carbon sink trading to make the benefits of ecological protection explicit. Sichuan Daocheng Yading raised 380 million yuan through green REITs, achieving full coverage of "photovoltaic + energy storage" microgrids. Electricity

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expenses decreased by 35%, and at the same time, it distributes 2.2 million yuan in dividends to the village collective every year. Secondly, collaborative governance determines the fairness and sustainability of revenue distribution. The government is responsible for policies, regulation and public services. Enterprises provide technology, markets and capital. The village collective controls resources, culture and labor force. Tourists contribute to consumption, data and word-of-mouth. The four parties share real-time data on passenger flow, revenue, environment and public opinion through the "Digital Cockpit", hold a "Cloud Council" once a month, and vote on major matters through a necklace to ensure transparent decision-making. After a one-year pilot program in Yuhu Village, Lijiang, the satisfaction rate of tourists has increased by 18%, the per capita income of villagers has risen by 32%, the operating costs of enterprises have dropped by 15%, and the number of government complaints has decreased by 40%.

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