Asia Pacific Science Press

Critical Humanistic Social Theory
ISSN(O):3005-9291
ISSN(P):3005-9283
Vol. 3 No.1 (2026)

Research on Strategies for Generative Artificial Intelligence to Promote the Construction of Rural Libraries Based on SWOT Analysis

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Abstract: This paper utilizes the SWOT analysis tool to conduct an in-depth examination of the internal strengths and weaknesses, as well as the external opportunities and threats, associated with the application of generative artificial intelligence in advancing the development of rural libraries. It proposes proactive growth (SO), diversified development (ST), transformative (WO), and defensive (WT) strategies for leveraging generative AI to enhance rural library initiatives. The aim is to provide theoretical support and practical guidance for the integration of AI in rural library development, thereby accelerating their transformation and upgrading.

Keywords: Generative AI; Rural Library; SWOT Analysis; Strategic Research; Theoretical Support

Published: Jan 26, 2026

DOI: https://doi.org/10.62177/chst.v3i1.1036

1.Introduction

The Rural Library Project, as one of the nation's four key cultural initiatives for public benefit and a foundational project for cultural development in new rural areas, was officially launched in 2007 and achieved nationwide coverage across all administrative villages by 2012 [1]. It has since become a crucial platform for addressing the shortage of cultural resources in rural areas and meeting the intellectual and cultural needs of farmers. However, with the transformation of rural social structures and the evolving cultural demands of farmers, issues such as prolonged book update cycles, severe content homogenization, and passive service models have become increasingly prominent. Some libraries have fallen into the dilemma of "prioritizing construction over operation," hindering their ability to fully realize their roles in cultural education and knowledge empowerment.

Generative artificial intelligence, centered on the Transformer architecture and powered by machine learning and deep learning algorithms, is capable of autonomously generating diverse content, including text, images, audio, and video [2]. It offers advantages such as high-efficiency content generation, strong innovation capabilities, and personalized services. As it continues to drive technological innovation and business model upgrades in fields like healthcare, education, and finance, generative AI has emerged as an essential pathway for promoting the transformation and upgrading of rural libraries.

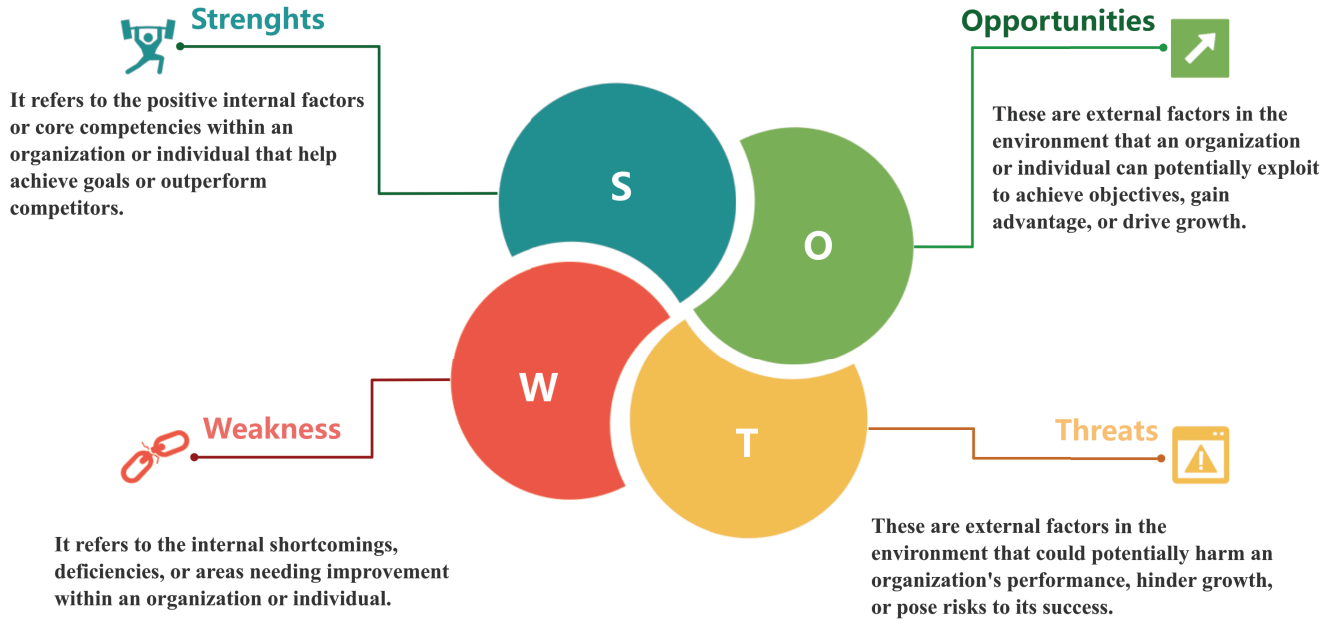
Existing research on rural libraries has primarily focused on topics such as their integration with rural public library service systems [3], problem analysis and countermeasures [4], and digital service enhancements [5]. However, studies specifically addressing the role of generative AI in advancing rural library development remain scarce. Therefore, this paper employs the

SWOT model to analyze the internal strengths and weaknesses, as well as the external opportunities and threats, associated with leveraging generative AI for rural library development. It further explores strategic approaches for integrating AI into rural library initiatives, aiming to provide theoretical support and practical guidance for AI-driven advancements in this domain and accelerate the transformation and upgrading of rural libraries.

2.The Advantages and Disadvantages of Generative Artificial Intelligence in Promoting the Construction of Rural Libraries

SWOT analysis, proposed by Professor H. Weihrich in the 1970s, is an analytical method that systematically matches the internal strengths and weaknesses with the external opportunities and threats of a research subject to rapidly identify development strategies [6]（Figure1）.

Figure1: SWOT analysis



2.1 Internal Strengths Analysis

2.1.1 Diversified Content, Breaking the Resource Supply Bottleneck

Traditional rural libraries rely on government funding and social donations for book procurement. Limited by financial and channel constraints, their content often suffers from severe homogenization and slow updates, frequently lagging behind the actual needs of farmers. As a crucial tool for advancing rural library development, generative artificial intelligence can efficiently produce diversified content, thereby overcoming the resource supply bottleneck. Firstly, it provides personalized services. Leveraging vast platform resources, generative AI constructs farmer profiles through large-scale data learning. Combined with personalized generation models, it achieves dynamic matching between content and farmers' needs, enabling precise content delivery. Secondly, it ensures strong content timeliness. Generative AI addresses the information lag inherent in traditional paper-based books in rural libraries. It can quickly generate new content based on real-time data and user demands, promptly reflecting cutting-edge knowledge and information. Thirdly, it offers diversity in content formats. Moving beyond the traditional paper book borrowing model, generative AI creates content in various forms such as text, images, audio, and video. This transmits knowledge in a more vivid and intuitive manner, enhancing farmers' learning motivation and engagement.

2.1.2 Multimodal Interaction, Innovating Service Experience

Currently, the delivery of reading services in traditional rural libraries is constrained by farmers' reading habits, which are often characterized by low reliance on text and a lack of reading interest [7]. Generative artificial intelligence addresses these challenges by innovating service experiences through multimodal interaction, thereby meeting farmers' reading needs.

Firstly, generative AI supports multi-format interactions, including intelligent voice assistants, audio/video, and text/image combinations. This allows it to answer user queries at any time, lowering the barrier to usage for farmers and enhancing service convenience and satisfaction. For example, the DeepSeek "Zhixiaogu" AI assistant integrated into Hunan's digital rural libraries enables users to ask questions via voice to receive book recommendations, agricultural technical advice, and general knowledge services. Secondly, generative AI facilitates AR/VR immersive experiences. By utilizing Augmented Reality (AR) and Virtual Reality (VR) technologies, it can create virtual libraries or immersive reading environments. This allows users to enjoy engaging reading experiences that significantly enhance both the enjoyment and immersion of the reading process.

2.1.3 Protecting Cultural Resources, Promoting Cultural Dissemination

Generative artificial intelligence possesses characteristics of permeability and reproducibility, enabling it to effectively protect and disseminate rural cultural heritage resources [8]. In terms of cultural resource protection, generative AI employs technologies such as Optical Character Recognition (OCR) and speech recognition to digitize culturally valuable heritage materials stored in rural libraries. This achieves permanent digital preservation. Simultaneously, by integrating diverse rural cultural resources, it facilitates the construction of comprehensive cultural resource databases. This approach breaks the temporal and geographical constraints of traditional rural libraries, enabling broader resource sharing. Regarding the promotion of cultural dissemination, the "2025 Digital Rural Development Work Priorities" advocate for the integrated development of rural culture with other industries [2]. Guided by such policies, generative AI can be combined with the regional characteristics of rural libraries to creatively develop various models, such as "rural culture + tourism" and "digital education + culture." This promotes the synergistic development of nationwide reading and cultural-tourism integration. Examples include Jiangxi's "Wuyuan - Most Beautiful Countryside" and Anhui's "Huixiang Platform" [10]. These initiatives expand channels for rural culture and facilitate the wider dissemination of cultural resources.

2.2 Analysis of Internal Weaknesses

2.2.1 Insufficient Technical Adaptability

Traditional rural libraries lack systematic collection and organization of data resources. Additionally, issues such as insufficient accuracy and inconsistent formats in some data create dual challenges in both data quantity and quality when applying generative artificial intelligence (AI) to promote the development of rural libraries. This affects the training of generative AI models, leading to low technical adaptability. The main manifestations are as follows: First, generative AI has limited capabilities in dialect recognition and generation. While it performs relatively well with major dialects such as Southwestern Mandarin and Cantonese, its processing ability for less common dialects (e.g., Hakka and some branches of Minnan dialect) remains weak. Second, generative AI exhibits limitations in understanding regional folk characteristics, resulting in generated content that appears rigid and lacks regional cultural connotations. This fails to showcase the distinctive features of local culture.

2.2.2 Shortage of Professional Talent

The application of generative AI requires professional technical personnel for system construction, data training, and daily maintenance. However, rural areas have long suffered from severe brain drain, leading to a prominent shortage of professional talent. First, urbanization in China's rural areas has intensified, with young and middle-aged individuals often opting to work in cities. As a result, rural library managers are typically village cadres or volunteers who lack relevant training. Their limited cognitive levels and application skills create a dual challenge: operating intelligent systems and resolving system malfunctions. Second, some rural regions are geographically remote and economically underdeveloped, making it difficult to attract and retain external professional technical talent. This has created bottlenecks in the digital transformation and development of traditional rural libraries.

2.2.3 High Capital Investment

The development and application of generative artificial intelligence (AI) require substantial financial resources for initial technological research and development, equipment procurement, and subsequent operational maintenance. For most rural areas, the associated cost pressures are significant. Firstly, establishing a generative AI service platform involves considerable

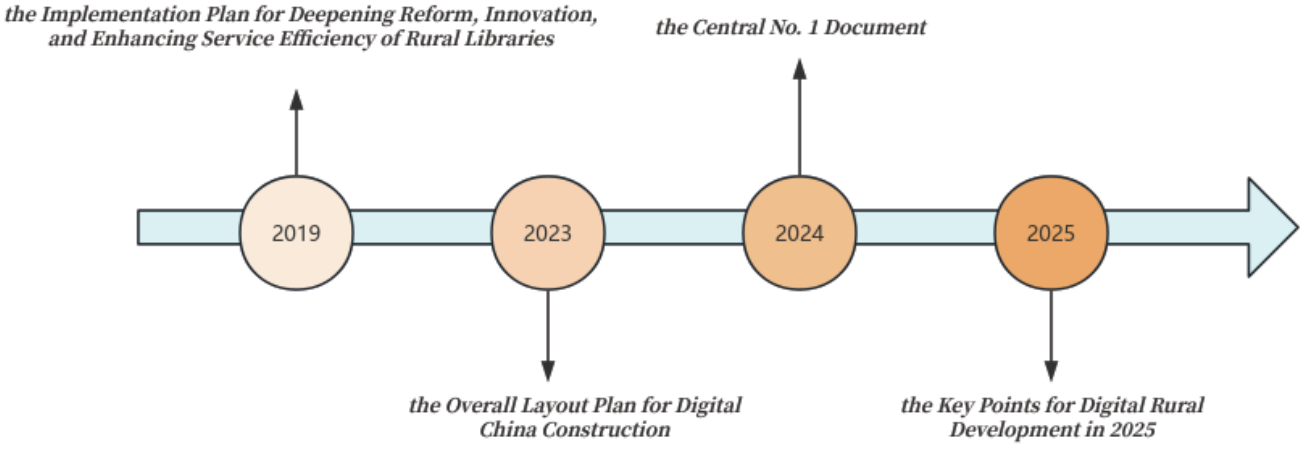
upfront expenses, including the purchase of servers, development of software systems, and costs related to data collection and model training. Secondly, ongoing financial support is necessary for system upgrades, data updates, and personnel training. However, the operational funding for rural libraries primarily relies on fiscal allocations, and in many regions, budgetary constraints make it difficult to ensure sustained investment. Thirdly, generated content requires copyright verification and compliance reviews. If third-party data or technologies are involved, additional licensing fees may be incurred, further increasing the financial burden.

2.3 Analysis of External Opportunities

2.3.1 Increasing Policy Support

In recent years, the state has placed high importance on the integrated development of artificial intelligence and rural revitalization, issuing a series of policy documents that provide policy support for the application of generative artificial intelligence in the construction of rural libraries (Figure2), in 2019, the Implementation Plan for Deepening Reform, Innovation, and Enhancing Service Efficiency of Rural Libraries emphasized the importance of promoting rural library development through high-tech means [11]. In 2023, the Overall Layout Plan for Digital China Construction proposed advancing the development of smart villages and enhancing the digitalization level of rural public services [12]. In 2024, the Central No. 1 Document stressed the need to strengthen the construction of rural public cultural service systems and promote the dissemination of high-quality cultural resources to rural areas [13]. In 2025, the Key Points for Digital Rural Development in 2025 highlighted the coordinated advancement of digital rural construction and the creation of a favorable environment for digital rural development [14]. In response to central policies, local governments have actively taken measures, introducing initiatives such as the Digital Rural Library Upgrade Project and the Rural Cultural Brain Construction. These policies provide directional guidance and financial support for the integrated development of generative artificial intelligence and rural libraries, thereby lowering the policy barriers to technological application.

Figure2: Policy Framework Supporting the Application of Generative AI in Rural Library Development



2.3.2 Optimization of Rural Digital Information Infrastructure

Encouraged by policies, rural digital information infrastructure has been continuously optimized, leading to a steady improvement in the efficiency of public services. Firstly, according to the 55th Statistical Report on China's Internet Development, as of 2024, the national internet penetration rate has reached 78.6%. Villages across the country are actively advancing the deployment of 4G base stations to fill coverage gaps and extending the construction of 5G networks [15]. This progress further moves towards achieving the goal of "equal network access and speed" between rural and urban areas, effectively addressing the network dependency issues associated with generative artificial intelligence. Secondly, in 2024, the rural internet user base reached 313 million people. The adoption rate of smart devices such as smartphones and tablets among farmers is continuously increasing, and their digital literacy is gradually improving. This has laid a solid user foundation for the integration of generative artificial intelligence with rural libraries.

2.3.3 The Rapid Advancement of Digital Reading

With the widespread adoption of smart devices such as smartphones and e-readers, the reading habits of the public have shifted from traditional methods to digital approaches. According to the 21st National Reading Survey Report, in 2023, the book reading rate among Chinese citizens was 59.8%, while the engagement rate with digital reading methods reached 80.3% [16]. This indicates that the advent of the digital reading era has gradually accustomed readers to acquiring information through smart devices, thereby reducing their reliance on printed books. In this context, content generated by artificial intelligence can be more readily accepted by the broader rural population, presenting a valuable opportunity for the transformation and upgrading of rural library initiatives.

2.4 External Threat Analysis

2.4.1 Inadequate Regulatory Framework

As an emerging technology, the regulatory system for Generative Artificial Intelligence (GAI) is characterized by its late establishment, slow development, and imperfect enforcement mechanisms. This has resulted in significant regulatory and normative gaps in the application of GAI to promote the development of Rural Libraries. Firstly, there are data security risks. Farmers generally exhibit weak awareness of data security and insufficient understanding of privacy protection, leading to potential risks of personal information leakage when using intelligent services. Furthermore, security vulnerabilities in Rural Libraries' intelligent systems, such as server attacks or data interception during transmission, can also result in data breaches, thereby intensifying privacy protection pressures. Secondly, copyright attribution remains ambiguous. In works generated by AI for the Rural Library domain, which often involve the use or adaptation of existing materials, it is difficult to clearly determine copyright ownership. This ambiguity easily leads to copyright disputes, posing legal risks for both creators and users.

2.4.2 Lack of Social Collaboration

Currently, the integrated development of GAI and Rural Libraries is still in a phase marked by tight computing resources and high training costs. Continuous improvement in foundational support and enhancement capabilities within the social system is required. Firstly, the integration of GAI and Rural Libraries primarily relies on government funding, with insufficient involvement from other social forces. Sole reliance on government efforts makes it difficult to utilize technological tools for precise analysis of villagers' needs and fails to fully mobilize resources and enthusiasm from all sectors of society. Secondly, Rural Libraries suffer from slow resource updates and severe homogenization of content. The lack of synergy and linkage between Rural Libraries and public library systems creates barriers to resource sharing, easily leading to information silos. This situation severely undermines the effectiveness of GAI applications.

2.4.3 Constraints on Farmers' Digital Literacy

First, farmers exhibit a relatively low willingness to adopt new technologies. According to the China Rural Statistical Yearbook 2024, as of the end of 2023, 35.1% of household heads in rural areas still had an educational attainment below junior high school level [17]. Furthermore, the 56th Report on Rural Internet Development indicates that as of June 2025, rural internet users accounted for only 28.7% of the total online population in China [18]. Surveys show that 60% of non-internet users cite a lack of computer or internet skills as the primary reason for not going online. The educational background and technology adoption willingness of farmers significantly constrain the utilization of generative artificial intelligence. Second, the proliferation of diverse learning channels creates strong competition. With the advancement of informatization, farmers now have access to a wider array of information sources. Alternatives such as AI-powered search engines, professional database queries, and expert consultations may reduce the reliance on or uptake of generative AI tools, thereby limiting their application and impact in agricultural and rural contexts.

3.Strategies for Promoting Rural Library

Development through Generative AI Based on the analysis of the internal strengths and weaknesses, as well as the external opportunities and threats, regarding the application of generative AI in rural library development, this study proposes four strategic approaches: the Aggressive Strategy (SO), the Diversified Strategy (ST), the Turnaround Strategy (WO), and the Defensive Strategy (WT)(Table 1).

Table 1: SWOT Matrix for Promoting Rural Library Development through Generative AI

	Internal Strengths (S)	Internal Weaknesses (W)
	1. Breaking through resource supply bottlenecks 2. Innovating service experiences 3. Facilitating cultural dissemination	1. Insufficient technical adaptability 2. Shortage of professional talent 3. High capital investment requirements
External Opportunities (O)	Aggressive Strategy (SO)	Turnaround Strategy (WO)
1.Increasing policy support 2.Optimization of rural digital information infrastructure 3.Rapid growth of digital reading	1. Leverage policy support to achieve resource penetration into rural areas. 2. Continuously improve digital infrastructure to enhance service effectiveness. 3. Capitalize on the digital reading trend to develop distinctive local cultural features.	1. Enhance technical adaptability levels. 2. Establish a professional talent pool. 3. Broaden funding channels
External Threats (T)	Diversified Strategy (ST)	Defensive Strategy (WT)
1. Imperfect regulatory system 2. Lack of social collaboration 3. Limited digital literacy among farmers	1. Improve the regulatory system to standardize market order. 2. Foster a collaborative cultural environment involving government, enterprises, and society. 3. Enhance the digital literacy of farmers.	1. Construct lightweight intelligent systems. 2. Strengthen cost control and resource reuse. 3. Establish information security safeguard mechanisms.

3.1 Aggressive Development Strategy (SO)

3.1.1 Leveraging Policy Support to Achieve Resource Penetration

By aligning with national and local policy guidance on the digital transformation of rural libraries and the construction of rural digital culture, the advantages of generative AI in overcoming resource supply constraints should be fully harnessed to expand the scale and adaptability of digital resource repositories in rural libraries. Utilizing policy-backed funding, continuous optimization of generative AI algorithms and the in-depth development of generative AI production tools should be prioritized. To meet the personalized needs of farmers, tailored content such as concise agricultural technical guides, dialect-based audiobooks, and illustrated local folklore stories should be automatically generated. Furthermore, by leveraging platforms such as the national rural library digital platform and rural cultural cloud projects, the generated content can be effectively disseminated to grassroots libraries. This approach addresses the issues of outdated and homogenized content in traditional rural libraries, transforming the resource supply model from "passive procurement" to "active customization."

3.1.2 Continuously Improve Digital Infrastructure to Enhance Service Effectiveness

The enhancement of network infrastructure serves as the core prerequisite and critical support for the development of rural libraries facilitated by generative AI. Technologies such as content generation, real-time interaction, augmented reality (AR), and virtual reality (VR) rely heavily on substantial data transmission and computational power. Expanding network coverage in rural areas, increasing broadband speeds, and improving network stability can ensure real-time connectivity between smart terminals—such as library smart screens and users' mobile devices—and cloud-based computing centers. This mitigates service interruptions or slow responses caused by network lag or delays, providing farmers with a seamless experience when using generative AI to query agricultural knowledge or generate reading materials. By ensuring that innovative services are "functional and user-friendly" on a robust infrastructure foundation, user engagement and retention among farmers can be significantly enhanced.

3.1.3 Seize the Digital Reading Trend to Develop Distinctive Local Cultural Characteristics

Generative AI should capitalize on the opportunities presented by the era of digital reading, leveraging its strengths in preserving cultural uniqueness and promoting cultural dissemination to transform rural libraries into "digital hubs for the transmission of rural cultural heritage." Firstly, in response to the growing demand for digital reading in rural areas, generative AI can be utilized to convert the unique cultural resources housed in rural libraries into digital content. Examples

include transforming oral narratives into audiobooks, annotating historical photographs to create illustrated columns, and compiling traditional agricultural expertise into structured digital manuals. Secondly, it is essential to "revitalize" local cultural characteristics. Content generated through generative AI can be disseminated via rural library digital platforms, rural cultural and tourism social media accounts, and other channels. This approach not only aligns with the evolving trend of digital reading but also enables rural indigenous culture to "come alive and reach wider audiences" through AI technology, thereby continuously strengthening farmers' sense of identity and belonging to their local culture.

3.2 Diversified Development Strategy (ST)

3.2.1 Improve the Regulatory System and Standardize Market Order

Under the guidance of national macro-level regulations, the regulatory system should be continuously refined by integrating the technical requirements of generative AI with the specific characteristics of rural library development, thereby standardizing market order. First, it is essential to clarify provisions in regulations such as the Interim Measures for the Management of Generative AI Services regarding copyright ownership, data security, and content review for the application of generative AI in rural libraries. Concurrently, a content traceability mechanism should be established to assign unique identifiers to AI-generated content, facilitating the tracking of content sources and review records. Second, regulatory authorities should enhance their oversight philosophy by conducting regular security inspections of servers to prevent cyberattacks. Proactive supervision should be implemented to address issues such as data leaks and copyright infringement in the development of rural libraries facilitated by generative AI, ensuring the healthy growth of rural culture.

3.2.2 Foster a Collaborative Cultural Environment

Involving Government, Enterprises, and Society using the content generated by generative AI for rural library development as a link, efforts should be made to amplify content promotion through media, public welfare platforms, and other communication channels, thereby continuously increasing the "brand awareness" of local culture. This approach can attract public attention to the integrated development of generative AI and rural libraries, stimulate market demand, and encourage enterprises and social capital to participate in projects that promote rural library development through generative AI. Through preferential policies, social resources such as funding, technology, and talent can be directed toward rural libraries, attracting external collaboration and compensating for the lack of social support. At the same time, leveraging the service advantage of generative AI in breaking geographical barriers, cross-regional collaborative alliances should be established. Through such alliances, high-quality resources generated by generative AI can be shared, preventing information silos and alleviating the fragmentation of resources caused by insufficient social collaboration.

3.2.3 Enhance the Digital Literacy of Farmers

Farmers' ability and willingness to adopt digital technologies are critical to the development of rural libraries facilitated by generative AI. First, engaging digital tools and guidance systems should be developed. Building on the strong interactive capabilities of generative AI, user-friendly interactive tools tailored to farmers' usage habits should be created to increase engagement and lower the barrier to entry. For example, complex generative AI operations can be simplified into low-threshold formats such as voice commands in local dialects or icon-based interactions, reducing the required level of digital literacy. Second, targeted training should be conducted. By leveraging generative AI to enhance training and education, immersive digital literacy training scenarios can be designed. Through simulated operations and real-time feedback, targeted training can be provided to bridge cognitive and technical gaps among farmers. By strengthening the platforms for improving farmers' digital literacy, obstacles to using generative AI due to insufficient digital skills can be gradually alleviated.

3.3 Turnaround Strategy (WO)

3.3.1 Enhance Technical Adaptability

Efforts should be made to advance the development of localized generative AI models to improve regional relevance. First, the ability of generative AI technology to interpret rural semantics and sentiments should be enhanced. Governments, social organizations, and enterprises should collaborate to increase funding for generative AI technology, continuously optimizing algorithms. Concurrently, agricultural, dialect, and cultural data from various regions should be collected and organized to improve dialect recognition and generation capabilities, including support for lesser-known dialects. This will enhance the re-

gional adaptability of the models. Second, specialized models should be developed based on local agricultural characteristics. For example, tailored generative AI models could be created for specific products such as Wuchang rice in Heilongjiang or tea cultivation in Fujian, ensuring that the generated agricultural content is both targeted and practical.

3.3.2 Establish a Professional Talent Pool

Talent development should be prioritized in promoting rural library development through generative AI, with a focus on both recruitment and training. First, external talent recruitment should be emphasized. By leveraging national policy incentives, such as "optimizing talent recruitment policies" and "cultivating local talent," efforts should be made to encourage professionals to work in or return to rural areas. This will ensure that each rural library is staffed with at least one information management professional who understands both technology and administration, enabling scientific and informatized management of the libraries. Second, internal talent training should be strengthened. In collaboration with local cultural and tourism bureaus, libraries, and universities, systematic training and specialized lectures should be provided to rural library staff. This will enhance their ability to apply and manage generative AI technologies. Additionally, a scientifically sound incentive mechanism should be established to continuously motivate library staff, boosting their enthusiasm and initiative, and ultimately improving service quality [19].

To facilitate the transformation and upgrading of rural libraries, it is essential to increase financial investment in generative artificial intelligence (AI) and introduce related equipment and software. First, leveraging multiple policies such as the 14th Five-Year Plan for Cultural Development [20] and the Comprehensive Rural Revitalization Plan (2024–2027) [21], efforts should be accelerated to empower rural libraries digitally. By applying for special projects such as "Generative AI + Rural Libraries," rural libraries can seek financial subsidies, tax reductions, or policy-based low-interest loans to lower procurement costs and alleviate the pressure of "high capital investment." Second, local governments should establish diversified funding mechanisms, actively encouraging social, corporate, and individual capital to participate. Through donations, cooperative construction, and other means, the integration of generative AI with rural libraries can be further promoted, ensuring stable funding sources and sustained investment.

3.4 Defensive Strategy (WT)

3.4.1 Build a Lightweight Intelligent System

To address practical constraints such as limited network bandwidth, high investment costs, and the simple usage habits of farmers in rural areas, a lightweight intelligent system should be developed. This involves simplifying and optimizing technological products, application functions, or operational models to better align with the limited conditions in rural areas. The goal is to implement core functionalities at lower costs and with lower barriers to entry, rather than pursuing technological comprehensiveness or complexity. Local governments can collaborate with technology companies or universities to customize simplified versions of generative AI tools suitable for rural libraries. For example, core functions such as agricultural knowledge Q&A can be broken down into standalone mini-programs that support offline caching, reducing reliance on real-time high-speed internet. The interface design should also be optimized, prioritizing icon-based and voice-interactive operation methods to accommodate the usage habits of middle-aged and elderly farmers.

3.4.2 Strengthen Cost Control and Resource Reuse

High capital investment is a significant constraint in introducing generative AI technology into rural libraries. To alleviate financial pressure, cost control measures must be implemented. Priority should be given to utilizing existing facilities and equipment in rural libraries, such as venues and computers. Only essential hardware, such as voice interaction devices and servers, should be upgraded to avoid redundant construction. Additionally, efforts should be made to promote the sharing of AI resources within counties. For example, multiple townships can jointly procure AI technology services, reducing the procurement costs for individual libraries through "bulk customization."

3.4.3 Establish an Information Security Safeguard Mechanism

A data security management protocol for rural libraries should be formulated to clarify the processes and permissions for data collection, storage, and usage in generative AI applications, strictly prohibiting the misuse of user data. Firewalls should be deployed, and an automated monitoring system should be established to protect user data. Regular security inspections of

servers should be conducted to prevent cyberattacks. At the same time, efforts should be made to enhance farmers' awareness of data security through educational initiatives such as informational posters and lectures. This will improve their ability to protect data privacy, effectively safeguard the achievements of generative AI in promoting rural library development, and standardize market order.

4.Conclusion

This paper employs a SWOT analysis to examine the internal strengths and weaknesses, as well as the external opportunities and threats, in leveraging generative AI to advance the development of rural libraries. Based on this analysis, proactive (SO), diversified (ST), turnaround (WO), and defensive (WT) strategies are proposed. The aim is to provide theoretical support and practical guidance for the application of AI in rural library development, thereby accelerating their transformation and upgrading. However, the research methodology has limitations, including a degree of subjectivity, which may result in a macro-level and somewhat one-sided analysis. Therefore, when implementing generative AI in grassroots rural library initiatives, it is essential to select appropriate development strategies based on local conditions, in order to effectively advance rural cultural revitalization.

Funding

No

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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