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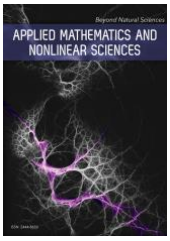

Applied Mathematics and Nonlinear Sciences

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Research on Cultural Inheritance of Non-Heritage Handicrafts Based on Big Data Analysis

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Abstract

Non-heritage handicrafts are outstanding achievements and wisdom crystallization jointly created by people of all ethnic groups in long-term life practice, and they are an important expression of the cultural values of the Chinese nation. From the perspective of tourism resources, this paper proposes the coupling path between non-heritage handicraft resources and rural tourism and constructs the planning mode of "non-heritage handicraft tourism". The evaluation model of the potential of industrialized development of non-heritage handicrafts, which contains 12 factor-level indicators, is constructed by comprehensively applying big data analysis, kernel density analysis, and hierarchical analysis method. The empirical results show that, among the four non-heritage handicrafts, Nixing pottery has the greatest industrialization potential with a high degree of affiliation (0.3621) and a high potential for industrialization and development. The evaluation results have established a scientific and reasonable system for developing or protecting handicrafts for different potential non-heritage craft projects. This can guide the current practice of revitalizing non-heritage crafts in full swing.

Keywords: Coupling; Big data analysis; Kernel density; Hierarchical analysis method; Potential evaluation model.
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1 Introduction

With the development of the times, under the impact of a strong culture, at present, the intangible cultural heritage handicrafts, although numerous and rich in connotation, are facing a heavy crisis in inheritance, and some of the intangible cultural heritage handicrafts are even on the verge of being lost [1-3]. Protecting, inheriting, applying, and developing a large number of intangible cultural heritage can not only preserve the roots of traditional culture and remember the nostalgia of the people but also play an important role and have far-reaching significance in promoting the inheritance of traditional culture and enhancing the cohesion and centripetal force of the nation [4-6]. The protection and inheritance of intangible cultural heritage handicrafts have important cultural value and far-reaching historical significance [7-8]. In the era of big data, the use of digital technology for the protection and inheritance of intangible cultural heritage handicrafts is urgent and even more imperative [9-10]. Big data can improve the security of non-heritage information, innovate the way of non-heritage inheritance, enhance the effectiveness of non-heritage dissemination, promote the development and utilization of non-heritage, broaden the channels of public participation, promote the scientific research of non-heritage, and provide new opportunities, conditions and means for the inheritance and development of non-heritage [11-13]. In the era of big data, with the advantage of big data resources, promoting the intangible cultural heritage handicrafts from the source to realize digital protection, digital inheritance, digital application, and digital development is an essential and important path and practical and effective initiative in the process of implementing the strategic objectives of national cultural digitization [14-16].

Literature [17] developed and applied an extended Theory of Planned Behavior (TPB) to examine the effectiveness of the public's intentions and behaviors to participate in the transmission of intangible cultural heritage during the collaborative process of the transmission of the art of pyrography in Qinghai Province, China. Literature [18], based on reviewing the literature on digital preservation of Chinese intangible cultural heritage (ICH), reviewed the digital preservation of ICH in China from four aspects: general database construction, classification system, application of digital technology, and practical research. Literature [19] describes some elements of the UNESCO Representative List of Intangible Cultural Heritage and explains their importance for the cultural identity of the Serbian people. Literature [20] explores the challenges faced by heritage practitioners and others in safeguarding intangible heritage and suggests remedies, using Tanzania as an example. Each context has specific challenges that require special attention rather than generalized solutions. Literature [21] aims to explore strategies for safeguarding intangible cultural heritage in education and reflect on the batik network in Pekalong Bank, Indonesia. The batik education network is established through the interaction between batik workers, batiks, batik museums, school teachers, workshops, or classes (e.g., student work in schools). Literature [22] is meant to complement previous discussions on the interplay between digital systems and the digitization of intangible heritage. That is, how we can see when some cultures design and build digital systems with the aim of including the intangible heritage of other cultures.

This paper introduces non-heritage handicrafts into the market, integrates the protection of non-heritage handicrafts with industrial development, and proposes a planning model of “non-heritage handicraft tourism”. Multi-source big data analysis is applied to the evaluation indexes of the potential of non-heritage handicrafts so as to construct an evaluation model of the potential of non-heritage handicrafts based on multi-source big data analysis. The star rating of the review data is associated with each historical and cultural resource point, and the kernel density analysis method is adopted to calculate the density of the non-heritage handicrafts in their fields through the kernel function. Finally, the validity of the model is empirically tested by evaluating the industrialization potential of four types of NRH handmade artifacts, namely, Zhuang brocade weaving, Dong wooden architecture, Qinzhou nixing pottery, and Maonan flower and bamboo hats.

2 Study the path of cultural inheritance of handmade arts and crafts of NRHs

2.1 Coupling of non-heritage handicraft resources and rural tourism

1) Non-heritage handicraft resources promote the cultural connotation of rural tourism

The integration of tourism and culture industries is interdependent, integrated, and mutually promoted. The integration process of the cultural tourism industry is shown in Figure 1. One of the distinctive features of non-heritage handicrafts is its cultural attributes. As a material carrier of traditional culture, it highlights its important value in modern society, where cultural soft power is becoming more and more important. Non-heritage handicrafts are tourism resources with great representativeness due to the cohesion of invisible cultural contents such as cultural traditions and living customs of different regions.

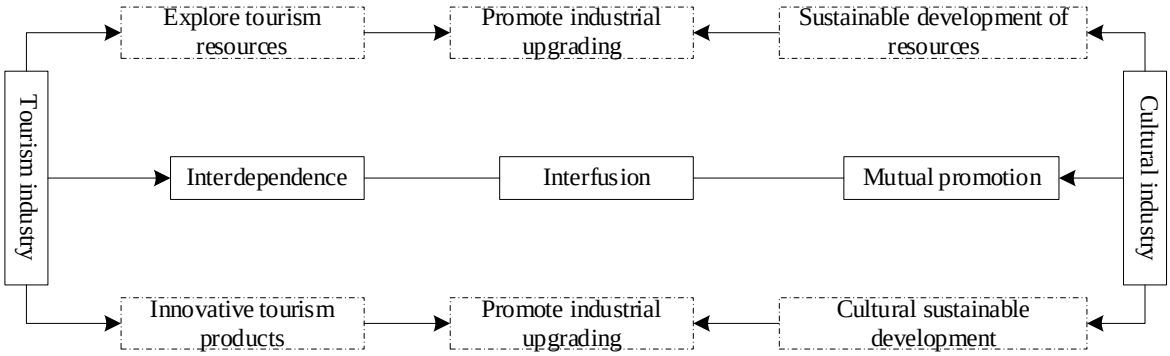

Figure 1. Cultural tourism industry fusion schematic

As an important part of traditional culture, non-heritage handicrafts have all the qualities to develop as a tourism industry. Moreover, as the cultural and economic value of non-heritage handicrafts are continuously developed and recognized, non-heritage handicrafts have immeasurable development potential.

2) Non-heritage handicraft resources promote the economic value growth of rural tourism

The combination of non-heritage handicrafts and rural tourism elements is shown in Figure 2; through the classification of non-heritage handicrafts resources, the development of non-heritage handicrafts resources can be integrated into all aspects of the six elements of tourism, and the combination of tourism activities is very close. Non-heritage handicrafts can produce exquisite souvenirs with special themes and cultural meanings. The development of these tourism artifacts can significantly enhance the perceptual experience of rural tourism, bringing economic benefits while fostering a positive interaction between traditional culture and rural tourism.

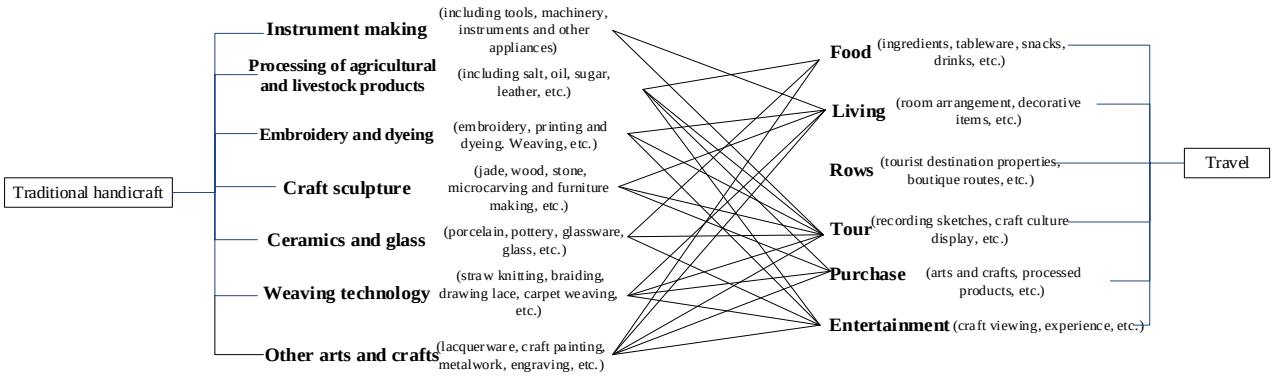

Figure 2. Traditional handicraft and rural tourism elements combine schematic diagram

3) Rural tourism can promote the protection and inheritance of non-heritage handicrafts

Reasonable development of rural tourism not only does not destroy the unique culture of the countryside but also plays an important role in preserving historical heritage and exploring rural culture. Rural tourism promotes the protection and inheritance of non-heritage handicrafts. As shown in Figure 3, rural tourism, with its dual nature of economy and culture, introduces non-heritage handicrafts into the market so that the protection and development of non-heritage handicrafts can be better integrated. And non-heritage handicrafts are respected and recognized in the process of curiosity, viewing, participation, and understanding by tourists, and are constantly protected, developed, and even innovated.

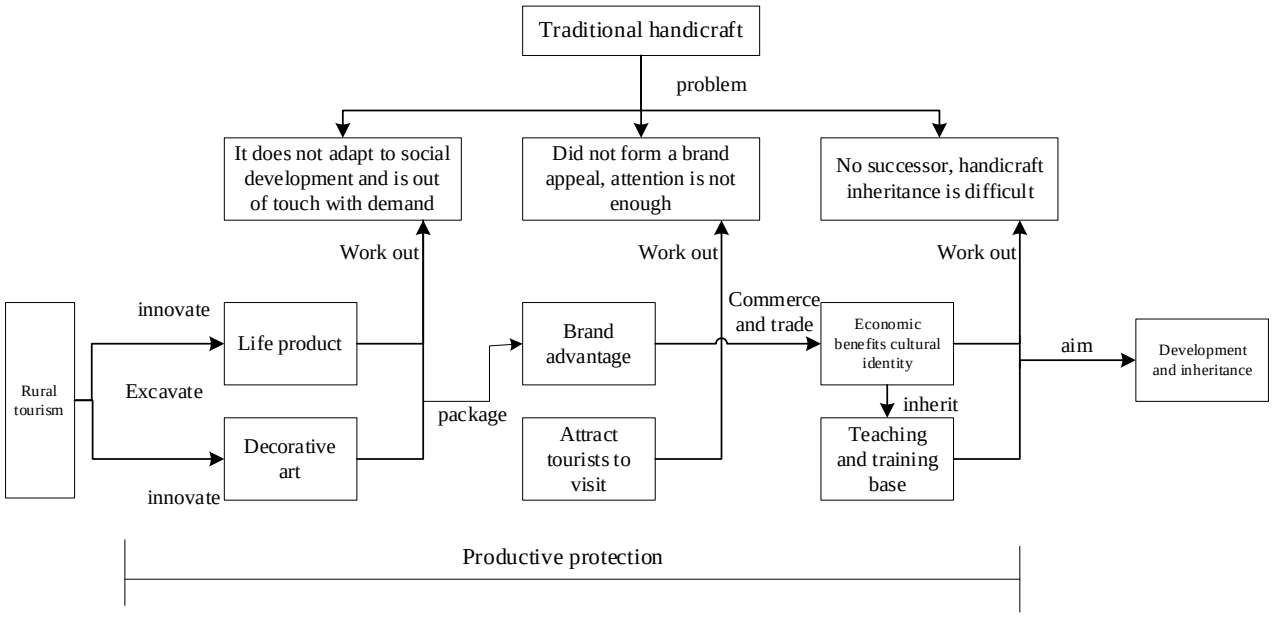

Figure 3. The protection and inheritance of intangible cultural heritage handicrafts

2.2 Tourism Planning Strategies Based on Non-Heritage Handicraft Resources

2.2.1 Layout planning for non-heritage craft tourism

Under the background of the dying of rural non-heritage handicrafts, combined with the continuous promotion and support of the state for “beautiful countryside” and “rural tourism”, this paper tries to put forward the planning mode of “non-heritage craft tourism” for the development of villages with

characteristic traditional handicrafts. This paper tries to put forward the planning model of "non-heritage craft tourism" for the development of villages with characteristic traditional handicrafts, integrating the development of non-heritage handicrafts and rural tourism in the whole process of rural development. The composition of the non-heritage crafts tourism model is shown in Figure 4, and the main purpose of the model is to develop and utilize the development of non-heritage crafts and the original natural rural scenery of the countryside as the two core elements of rural tourism in an integrated way in the process of village development driven by rural tourism.

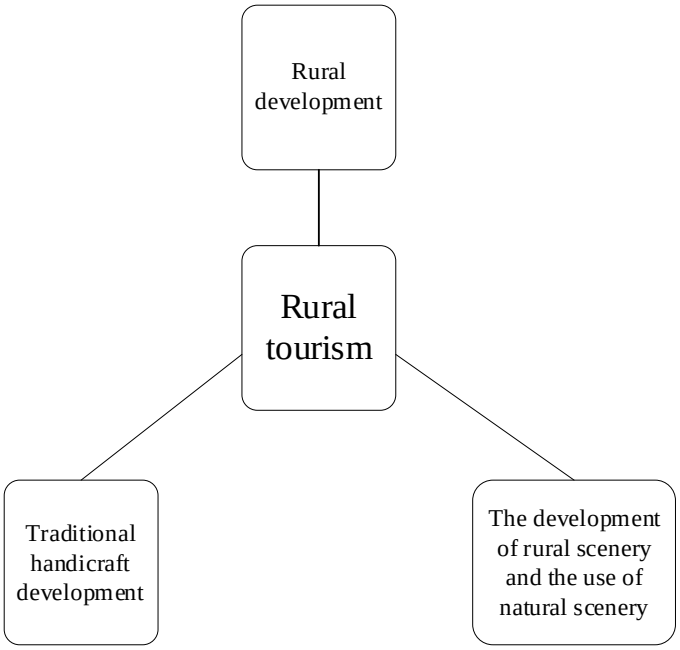

Figure 4. "Intangible cultural heritage process tourism" constitutes a diagram

The functional composition of the non-heritage craft tourism model is shown in Figure 5, which should divide the whole spatial layout structure of the countryside from the three levels of the village environment with the centralized distribution of architectural mansions, the agricultural environment with the distribution of farmlands, and the natural environment surrounded by mountains and woodlands. The three-level structure progresses from inside to outside, from artificial to natural, from closed to open, and represents the cognitive law of rural development and spatial protection. Non-heritage handicrafts, which are part of traditional cultural resources, require that their economic attribute be compatible with the development of society and people's needs. It should serve the development of rural tourism and the overall development of the village, which requires that the spatial form of the production, display, and sale of non-heritage handicrafts and the functional form of rural tourism should be well coordinated and integrated with the original spatial form of the village, and jointly form the planning and layout mode of non-heritage handicraft tourism.

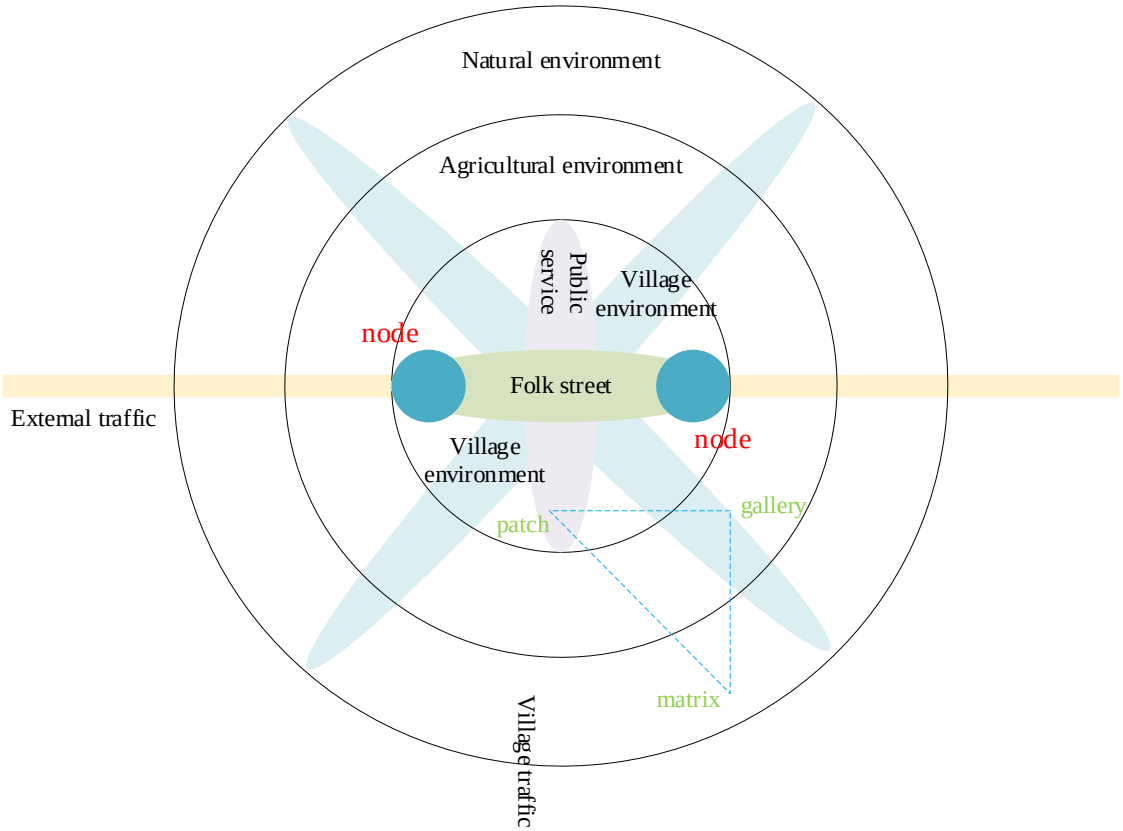

Figure 5. The function of the intangible cultural heritage Process tourism model

2.2.2 Industrial Layout Planning for non-heritage Crafts

In the layout mode of "non-heritage crafts tourism", four major types of industries are planned, namely, the non-heritage handicrafts industry, rural sightseeing and experience industry, nature sightseeing and experience industry, and tourism service industry. Among them, the development of non-heritage handicrafts is the core industry, which needs to appropriately expand the scale of the sector and form a characteristic industrial brand. Still, it needs to deal with the relationship between industrialized operation and productive protection so as not to lose the connotation of non-heritage handicrafts.

For the non-heritage handicraft industry with core development potential, expanding the industrial boundaries of non-heritage handicrafts and giving it more industrial functions and product characteristics is the necessary way to develop and grow the non-heritage handicraft industry. Therefore, the functions of production, sales, and education of non-heritage handicrafts are extended to the industrial chain through big data mining and analysis in order to maximize the cultural and economic value of these handicrafts.

The mind map of the non-heritage craft industrial layout planning is shown in Figure 6, and the clarity of the non-heritage craft industrial layout provides direct guidance for the development of tourism resources, which can promote the pertinence and rationality of tourism resources development. At the same time, through the folk culture represented by non-heritage crafts, leisure agriculture, nature tourism, and other forms of integrated development. Together, they constitute a complementary

primary and secondary tourism program with distinctive features that continuously enhance the competitive advantages of rural tourism.

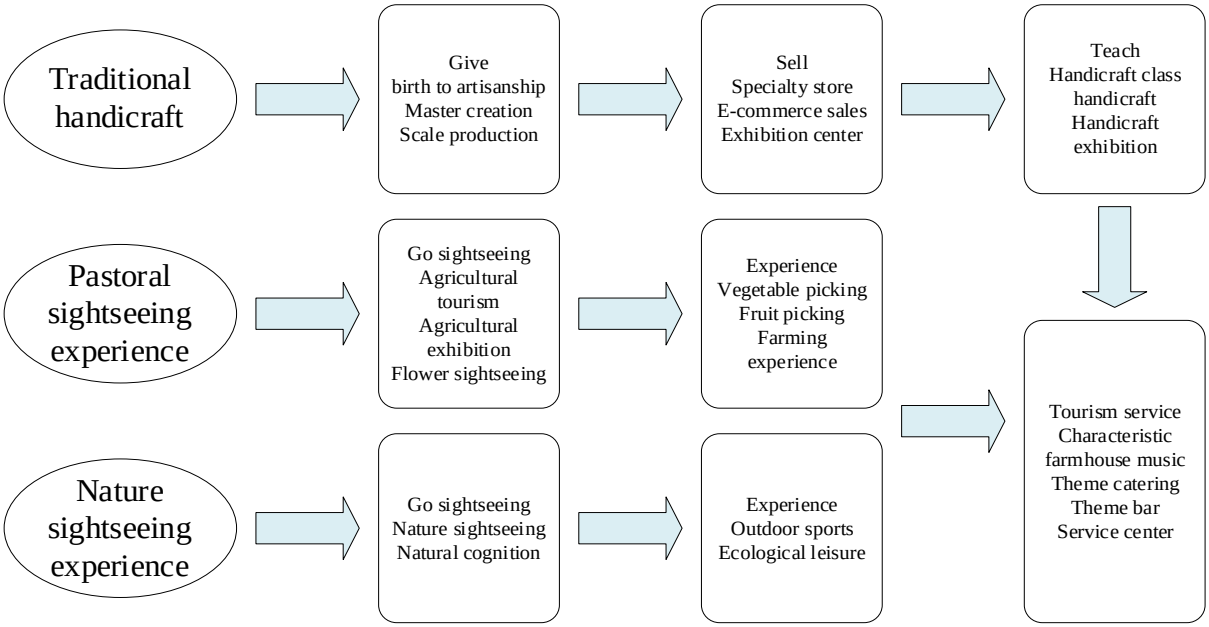

Figure 6. The industrial layout plan of intangible cultural heritage arts and crafts

3 Evaluation of the potential of non-heritage crafts based on big data analysis

3.1 Vitality of intangible cultural crafts

Handcrafted artwork has an important element of intangible culture, which is directly linked to the vitality of the space. The vitality generated by displaying cultural heritage through different forms of expression, inherited from the history of other ethnic groups to the present day, is specifically discussed. The forms of expression include traditional oral scripts, traditional arts, calligraphy, music, songs, skills, traditional rituals, festivals, and other folklore. It is the preservation of legacy through the development of handcrafted artifacts through generations, which is the spiritual memory of the region. However, the selection of indicators for the vitality of intangible culture is often abstract and difficult to visualize. Therefore, it is necessary to tangibly visualize the intangible intangible culture.

When intangible culture is combined with physical places, it is usually embodied in traditional customs such as food, drink, and festivals. Traditional oral literature, music, dance, and other traditional aspects are realized through the establishment of workshops for inheritors, such as master workshops and craft workshops. The quantification of material and intangible cultural vitality is done through major review sites. Review historical and cultural resources for the area in question, including Marmot.com, Ctrip.com, and other sites. The review data star associated with each historical and cultural resource point, all with the kernel density analysis method, through the calculation of the kernel density function to get the density of the point elements around each output raster image element in its domain, the calculation formula is as follows:

$$f(x)\sum_{i=1}^{n} k\left(\frac{x-x_i}{h}\right) \tag{1}$$

Where n is the total number of commercial point samples, h is the bandwidth of the kernel density calculation, $k\left(\frac{x-x_i}{h}\right)$ is the kernel function, and $x-x_i$ is the distance from the estimated point to the sample point.

3.2 Indicators and quantitative methods for evaluating space vitality

The total scale and spatial distribution dimensions are chosen as evaluation indicators for spatial vitality, which corresponds to spatial dimensions. The size of the spatial unit influences the average density of spatial vitality, making this index ineffective for identifying differences in the vitality of the internal space of NRH handicrafts. The total scale of spatial vitality is conducive to studying the overall spatial vitality of non-heritage artifacts.

Spatial syntax is used to express the relationship between population and space with specific quantitative indicators, among which the integration degree is the most commonly used and effective syntax indicator in urban space research. The integration degree can reflect the accessibility level of spatial units, and the higher the integration degree value, the stronger the spatial accessibility level. Highly attractive functional agglomeration areas are associated with spatial units with a high integration degree. Integration degrees consist of a global integration degree and a local integration degree. The global integration degree is used to quantify the degree of aggregation and disaggregation of a spatial unit with other spaces. In contrast, the local integration degree measures the degree of aggregation and disaggregation of a spatial unit with spatial units within the distance of three connecting steps. The formulas for Global Integration I_i and Local Integration LI_i are as follows:

$$MD_i = \frac{\sum_{j=1 j\neq 1}^{n} d_{ij}}{n-1} \tag{2}$$

$$RA_i = \frac{2(MD_i-1)}{n-2} \quad RRA_i = \frac{RA_i}{D_n} \tag{3}$$

$$D_n = \frac{2\left\{n\left[\log_2\left(\frac{(n+2)}{3}-1\right)\right]+1\right\}}{(n-1)(n-2)} \tag{4}$$

$$I_i = \frac{1}{RA_i} \tag{5}$$

$$LI_i = \frac{1}{RRA_i} \tag{6}$$

Where MD_i represents the minimum number of connectivity steps for the evaluation of cell space i to all other cell spaces, d_{ij} denotes the depth value from i to j, and n is the total number of nodes in the space. In order to eliminate the effect of redundant nodes on integration, the evaluation depth values are therefore normalized by RA_i relative asymmetry values.

3.3 Construction of potential evaluation system based on multi-source big data analysis

Multi-source big data analysis is applied to the corresponding evaluation indicators of the potential of non-heritage handicrafts and quantified so as to construct the evaluation system of the potential of non-heritage handicrafts based on multi-source big data analysis. In the evaluation system of the potential of non-heritage artifacts, the importance of different indicators varies at various levels and the same level. The degree of vitality of non-heritage artifacts will eventually be affected by the differences, so the determination of the weights of the indicators of the evaluation system directly affects the science and objectivity of the evaluation process. The weight determination method is mainly divided into objective and subjective assignment methods, while the objective assignment method mainly uses the Delphi method and hierarchical analysis method.

3.3.1 Evaluation Scale Construction for AHP

Through the establishment of the judgment matrix, each indicator at each level is judged by comparing two by two, with b_{ij} indicating the result of the comparison of the i nd indicator with respect to the j rd indicator, then $b_{ij} = \frac{1}{b_{ji}}, \quad b_{ii} = 1.$

Comparison matrix:

$$A = (b_{ij})_{n\times n} = \begin{bmatrix} b_{11} & b_{12} & \ldots & b_{1n} \\ b_{21} & b_{22} & \ldots & b_{2n} \\ \ldots & \ldots & \ldots & \ldots \\ b_{n1} & b_{n2} & \ldots & b_{nn} \end{bmatrix} \tag{7}$$

The evaluation scale is shown in Table 1, where 2, 4, 6, and 8 indicate that Element i is between the above two adjacent levels of importance compared to Element j.

Table 1. Evaluation scale

Evaluation scale	Meaning (The element *i* is compared to the element *j*)
1	*i* is just as important as *j*
3	*i* is slightly more important than *j*
5	*i* is more important than *j*
7	*i* is significantly more important than *j*
9	*i* is absolutely important compared to *j*

3.3.2 Importance calculations

Calculate the weight vector values of the matrix using the approximate solution method:

$$(w_i)\ P_i = \sqrt[n]{b_{i1} \times b_{i2} \times \ldots\ldots \times b_{im}} \tag{8}$$

$$w_i = \frac{P_i}{\sum_{i=1}^{n} P_i} \tag{9}$$

Where b_{ij} denotes the number of rows i and columns j in the A matrix, which satisfies $b_{ij} = \frac{1}{b_{ji}} > 0$.

Next, the maximum characteristic root is calculated as:

$$\lambda_{\max} = \frac{1}{n}\sum_{i=1}^{n}\frac{(A \cdot W)_i}{w_i} \tag{10}$$

Where, A is the judgment matrix, W is the eigenvector, and $(A \cdot W)_i$ denotes the i th number of the $A \cdot W$ matrix.

The consistency test is performed again and the consistency index:

$$CI = \frac{\lambda_{\max} - n}{n-1} \tag{11}$$

Randomized consistency indicator RI is obtained by randomly building m pairwise comparison matrices $A_1, A_2, ..., A_m$ to obtain consistency indicator $\mathrm{CI}_1, \mathrm{CI}_2, ..., \mathrm{CI}_m$, then:

$$RI = \frac{CI_1 + CI_2 + ...CI_m}{m} = \frac{\frac{\lambda_1 + \lambda_2 + ...\lambda_m}{m} - n}{n-1} \tag{12}$$

When $CI = 0$ the matrix has full consistency. When $CI < 0.1$ A is considered to satisfy consistency. Otherwise, research from scratch or seek expert guidance to modify A so that it satisfies the consistency test.

Finally, a total hierarchical ranking is performed. Synthesis of inter-level weights is performed from bottom to top, i.e., the weight of each scenario in the model scenario level in the target level is calculated. If $CR < 0.1$ it is said to have a satisfactory consistency test. CR The calculation formula is:

$$CR = \frac{\sum_{i=1}^{n} B_j \cdot CI_j}{\sum_{i=1}^{n} B_j \cdot RI_j} \tag{13}$$

4 Analysis of cultural transmission of non-heritage handicrafts based on potential evaluation

4.1 Analysis of indicators for evaluating the potential of non-heritage crafts

In this paper, 12 indicators were extracted from the source literature through literature summary and expert assessment judgment, and the ideal indicator set was constructed to measure the potential industrialization and development of NRH handicrafts. Through the importance calculation method, the weights of indicators at all levels are obtained, as shown in Table 2. It can be seen that the most

important indicator is the economic value indicator, with a weight of 0.1905. In the final analysis, the ultimate driving factor for the industrialization development of NHH is the monetary value, which is efficient only when the protection effect of NHH remains unchanged and the economic benefits generated by the industrialization development can feed back the protection of NHH, or offset some of the protection costs.

Table 2. The index weight table at all levels

Target	Index	Weighting	Ranking
The development potential of intangible cultural heritage handicraft industrialization	Practical value (X_1)	0.0955	4
	Aesthetic value (X_2)	0.0481	9
	Economic value (X_3)	0.1905	1
	The respect of the inheritor (X_4)	0.0395	11
	Abundance of raw materials (X_5)	0.0628	7
	Cultural space protection (X_6)	0.0530	8
	The size of the inheritors (X_7)	0.1137	3
	Government guidance and management (X_8)	0.0478	10
	Associated industry (X_9)	0.0265	12
	Market demand (X_{10})	0.1366	2
	Innovative development (X_{11})	0.0940	5
	Education support (X_{12})	0.0919	6

The next most important is the market demand indicator, with a weight of 0.1366. Market demand is necessary for the conversion of non-heritage handicraft products into commodities, and the market is an important medium for traditional handicrafts to participate in contemporary life. The transformation of non-heritage handicraft products into commodities is only possible when they are sold in the market.

4.2 Empirical analysis of the evaluation of the potential of non-heritage handicraft artifacts

There are a total of 49 national-level NRLs in Province G. Among the NRL handicrafts are the Zhuang brocade weaving technique, the Dong wooden building construction technique, the Qinzhou nixing pottery firing technique, and the Maonan flower bamboo hat preparation technique.

4.2.1 Steps in Potential Evaluation

An evaluation method called fuzzy comprehensive evaluation is derived from fuzzy mathematical theory and is suitable for evaluating non-quantifiable objects. In this paper, the evaluation indexes for the potential development of industrialization of non-heritage handicrafts are all qualitative, so the fuzzy comprehensive evaluation method is used for evaluation. The specific steps are as follows:

1) Establish the judgment set $V=\{v_1,v_2,v_3,v_4,v_5\}$, the content of the decisions represented by the judgment set respectively, i.e., low (v_1), low (v_2), average (v_3), high (v_4), and very high (v_5).

2) The evaluation index system established in this paper has two levels of evaluation indexes, first judging the factor layer indexes and then judging the criterion layer indexes.

3) Experts are invited to judge the factor level indicators X_i, and the evaluation matrix is formed according to the results of single-factor evaluation:

$$R_i = \begin{bmatrix} r_{11}^{(i)} & r_{11}^{(i)} & \cdots & r_{1j}^{(i)} \\ r_{21}^{(i)} & r_{22}^{(i)} & \cdots & r_{2j}^{(i)} \\ \cdots & \cdots & \cdots & \cdots \\ r_{n_i 1}^{(i)} & r_{n_i 2}^{(i)} & \cdots & r_{n_i j}^{(i)} \end{bmatrix} \tag{14}$$

The fuzzy comprehensive evaluation formula is:

$$B_i = W_i \circ R_i \tag{15}$$

Where "$\circ$" is the fuzzy synthesis operator, denoted as $M(*,\otimes)$ "$*$" and "$\otimes$" are the two operations of fuzzy transformation. The commonly used fuzzy synthesis operator has five types: main factor determination, main factor highlight, weighted average type, taking small upper bound type, and balanced average type. Based on the evaluation context, the weighted average type operator is more appropriate for this paper. The evaluation results are determined according to the principle of maximum affiliation, which is to take $\max\{m_j\}$ corresponding grades as the final grade of the evaluation object.

4) Experts are invited to evaluate each factor and form an evaluation matrix, which means that the size of the industrialization development potential of the four NRH handicrafts, namely, Zhuang brocade weaving skills, Dong wooden building construction skills, Qinzhou nixing ceramic firing skills, and Maonan flower and bamboo hat compilation skills, can be derived.

4.2.2 Evaluation results of industrialization and development potentials

The fuzzy comprehensive evaluation of this paper invites a total of 20 experts in the field of "non-heritage crafts" to evaluate the indicators of Nixing pottery firing skills, Zhuang brocade weaving skills, Dong ethnicity wooden building skills, and Maonan ethnicity flower bamboo hat preparation skills, a total of 20 questionnaires were issued, and 20 were recovered, with a recovery rate of 100%. The evaluation results were counted, and Excel software was used to calculate the ratio of the evaluation results of the corresponding evaluation indicators of each handicraft category "non-heritage" project. Then, the evaluation matrix is formed by combining the ratio obtained with the weight data obtained in the previous section, and the evaluation results of the industrialization potential of each project are obtained using Matlab software.

The initial step is to perform the first-level fuzzy comprehensive evaluation. According to the distribution of the evaluation results at the factor level of the evaluation model of experts and scholars for the industrialization and development potential evaluation model of the Nixing ceramic firing technology (D1), Zhuang brocade weaving technology (D2), Dong wooden building construction technology (D3), and the Maonan flower and bamboo hat compilation technology (D4), the resulting evaluation results are shown in Table 3. From the results of the fuzzy comprehensive evaluation, it can be seen that the industrialization potential of Nixing Tao has the largest degree of affiliation of 0.3621 at the high level. According to the principle of the maximum degree of affiliation, it can be seen that Nixing Tao has a large potential for industrialization and development of non-heritage crafts. The development potential for the industrialization of the Zhuang brocade weaving technique is

average (0.3324), and the industrialization development potential of the Dong wooden building construction technique and Maonan flower and bamboo hat preparation technique is low.

Table 3. The potential evaluation results of the intangible cultural heritage

Intangible cultural heritage handicrafts	Very low	Lower	General	Higher	Very high
D1	0	0.0812	0.3034	0.3621	0.2533
D2	0.1912	0.2715	0.3324	0.1483	0.0566
D3	0.3015	0.3384	0.2044	0.1238	0.0319
D4	0.2313	0.3516	0.2416	0.1152	0.0603

4.3 Analysis of the Mechanism of Influence on the Strength of Non-Heritage Arts and Crafts Activities

4.3.1 Impact of NRM craft liveliness based on intrinsic value

Based on the intrinsic characteristics of non-heritage handicrafts, the reasons for the low activity of non-heritage handicrafts can be summarized as the following three points:

1) The historical value and cultural value of non-heritage handicrafts have not been fully explored, and it is difficult for the public to have the feeling of being there, the sense of identity and belonging is greatly reduced, the reuse effect is poor, and the value of its education and enlightenment is immature.

2) Due to the loss of inheritance for a long time, the non-heritage handicrafts have lost their original appearance, and their techniques are incomplete.

3) As some of the non-heritage handicrafts have not been disseminated to the outside world, their advertising effect is not obvious, and their popularity is still small.

This section specifically explores the indicators of the intrinsic value of non-heritage handicrafts. It obtains the columnar comparison of the influence mechanism of its inherent value, as shown in Figure 7. Starting from the historical value of non-heritage artifacts, non-heritage artifacts with low vigor are mainly from the New China period (0.7143) and the Republican period (0.2857), non-heritage artifacts with the second-lowest vigor are mainly from the Republican period (0.7333), and non-heritage artifacts with high vigor are mainly from the pre-Qing period (0.5342). There appears to be a correlation between the vigor of NRH artifacts and their inheritance time. From the perspective of artistic and aesthetic value, the more prominent the aesthetic value of NRH artifacts, the higher their value. From the standpoint of scientific and technological value, NRH handmade artifacts have obvious characteristics in terms of industry pioneering and representativeness, and the higher the vitality level, the more obvious its industry representativeness and pioneering.

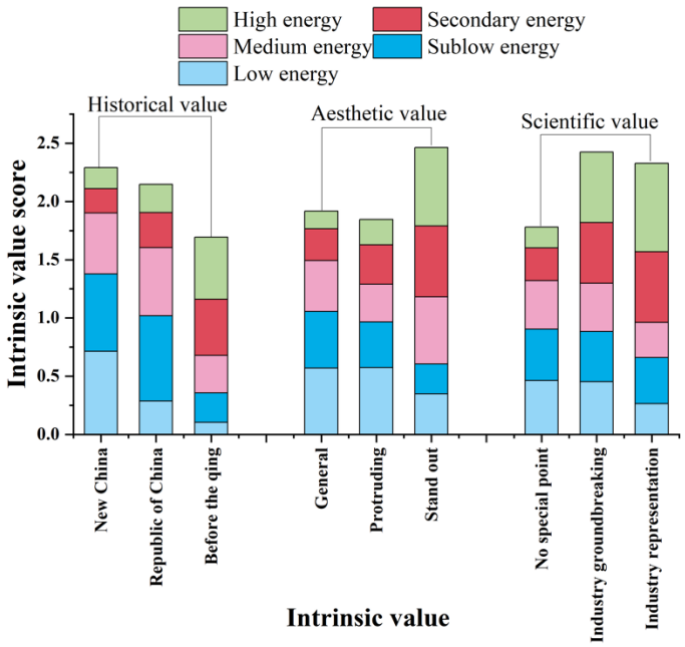

Figure 7. The column comparison of the intrinsic value impact mechanism

4.3.2 Impacts of NRM vitality based on economic value

In this section, from the five indicator layers of the economic value of non-heritage handicraft artifacts, the influence mechanism of their live strength level is counted, and the columnar comparison of the influence mechanism of the monetary value of non-heritage handicraft artifacts is obtained as shown in Figure 8. From the perspective of the inheritance integrity of non-heritage handicraft artifacts, as the inheritance integrity increases, the low liveliness score decreases. When the inheritance integrity of non-heritage artifacts is very good, the low activity score is 0.1433, and the high activity score is 0.6901. From the perspective of the industrial scale of non-heritage artifacts, the larger the industrial scale of non-heritage artifacts, the higher their activity score.

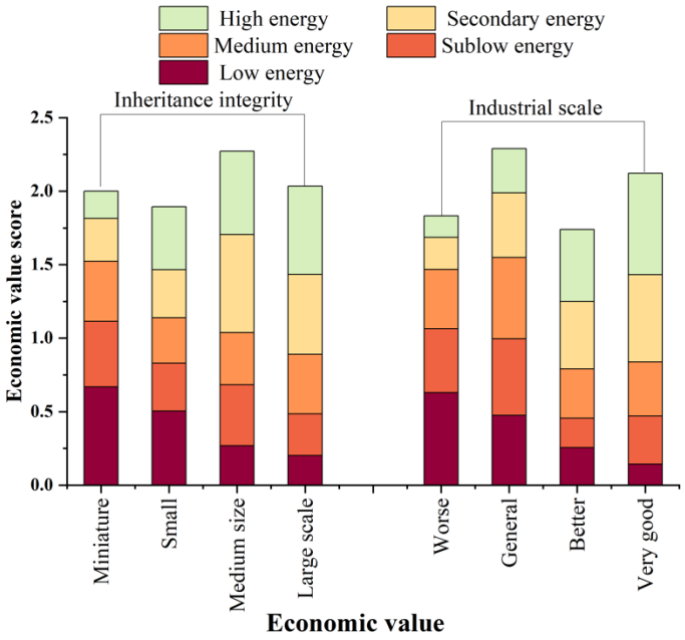

Figure 8. The economic value influences the mechanism column comparison

The vitality of the cultural inheritance of NRH handicrafts corresponds to the material cultural elements of the explicit promotional elements of vitality and the intangible cultural elements of the implicit promotional aspects of vitality. The proposal includes targeted revitalization strategies for different elements of the cultural dynamism of non-heritage handicrafts:

1) Marketing and Promotion

On the basis of good program planning, the efforts of project packaging and promotion should also be strengthened to realize diversified financing channels. Wide publicity of the project is carried out through various thematic activities, conferences, and forums as a platform for promotion, and cultural exchanges of non-heritage handmade artifacts are used as a bridge to promote communication with other handicrafts cultures.

2) Project Management

Draw on advanced experiences, such as the management model of specialty industrial parks, to gradually promote the upgrading of enterprise construction and management. The management of the project should be adapted to the local conditions, boldly innovate, improve the management system, attract management talents from all parties, and realize the major upgrading of economic benefits, humanistic environment and management system.

3) Create festivals to create atmosphere

Festivals are a type of mobile humanistic tourism resource. Establishing festival brands and creating a leisure atmosphere can attract a large number of visitors to participate in the activities, thus creating business opportunities and enhancing the brand image of the non-heritage handmade arts and crafts.

4) Strengthen the construction of the internship base

The inheritance and development of non-heritage handicrafts require the support of young talents, on the one hand, through favorable conditions to attract handicraft artists to come here for creation and exchange. At the same time, it strengthens the partnership with art colleges and universities to offer internship opportunities for college students to create art. As the core of the cycle system of production, teaching, and learning, the training base for non-heritage handicrafts is of great significance to the industrialization of non-heritage crafts.

5 Conclusion

Based on the statutory guideline of “protection-oriented, rescue first, reasonable utilization and scientific development”, this paper tries to further explore the industrialized inheritance and protection of non-heritage handicrafts by combining the methods of big data analysis and industrialized development potential evaluation. At the same time, we constructed and applied the evaluation model of the industrialization potential of non-heritage handicrafts and evaluated the industrialization potential of four national non-heritage handicrafts projects of Guangxi: Zhuang brocade weaving technique, Qinzhou cement pottery firing technique, Dong wooden building construction technique, and Maonan flower bamboo hat weaving technique. The results obtained show that the industrialization potential of the Qinzhou Nixing Pottery Firing Technique is evaluated as high (0.3621), that of the Zhuang Brocade Weaving Technique is average (0.3324), and that of the Maonan Flower and Bamboo Hat Weaving Technique and Dong Wooden Building Construction Technique is low. Then, based on the results of the evaluation, the four national-level non-heritage handicraft projects were analyzed in depth to explore the advantages and disadvantages of their

industrialization, and corresponding development countermeasures were proposed based on the evaluation results.

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