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Sustainable Development of Cultural Industry in Shaanxi Province of Northwest China: A SWOT and AHP Analysis

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Abstract: The culture and landscape of Shaanxi Province are representative of Northwest China. Despite the current prosperity of tourism, the issue of sustainable development of cultural industry in Shaanxi Province is emerging increasingly. We analyzed the challenges and prospects for cultural industry in Shaanxi Province using the SWOT (Strength, Weakness, Opportunity and Threat) approach, in combination with the analytic hierarchy process (AHP). We used preferential data from local experts who have an extensive and diverse understanding of cultural industry of Shaanxi Province. The results reveal that strengths and opportunities for cultural industry in Shaanxi Province outweigh its weaknesses and threats. The experts believed that the abundant resources in landscape and history are the major strength, and the huge demand in the Chinese market is the important opportunity. While the lag in social concept and governmental execution is identified as a weakness for the development of cultural industry, Western cultural impact and domestic/intra-regional competitions are considered to be the critical threats. The quantitative analysis of the strategies indicates the strength/opportunity strategy is the optimal one for the sustainable development of Shaanxi's cultural industry.

1. Introduction

The development of cultural industries in China plays an important role in promoting the national economy, which is frequently emphasized by the central and local governments. The cultural industry is characterized by low cost, less energy consumption and high intangible economic value, which is conducive to the sustainable development of the third tertiary sector and the entire economy. The Chinese cultural industry shows obvious regional dependence (in Figure 1); in the East, Beijing and Shanghai are the cultural centers with fully filled cultural industries, and film production is booming in Zhejiang and Jiangsu Province [1]. Contrarily, the development of cultural industry in Northwest China lags behind that of Eastern China. Shaanxi Province is the most historical region of China, the cultural industry of Shaanxi is more dynamic than other western provinces. In 2016, the total tourism revenue of Shaanxi Province was 381.3 billion RMB (59 billion US dollar), accounting for about 50% of the added value of cultural industry (80.23 billion RMB, 8.03% of the provincial GDP) [2]. However, early in 2014, report said that 70% of tourism revenue is the ticket's proceeds from historical heritages and landscapes [3]. The risk of increasing development of cultural industry in Shaanxi Province has recently emerged due to the over-reliance on tourists and ticket sales. During 2010-2016, the number of Chinese outbound tourists increased from 50 million to 123 million [4]. Affected by the above trend, once the increment of visitors to Shaanxi slows down, the tourism revenues and the growth of related cultural industry may encounter bottlenecks or even fall into recession in future [5].

The necessary responses on policy and market to maintain sustainable development are therefore on the agenda for Shaanxi Province. As a premise, the status and further prospects of cultural industries deserve comprehensive consideration from the internal and external factors. The purpose of this study is to clarify: what are the factors affecting the developing of cultural industry in Shaanxi now, what is the relative importance of abovementioned factors; which kind of strategy is preferable in the future development of cultural industry; and what implications can be drawn from this study in theoretical and practical aspects. We also hope that this study can provide a reference for policy formulation and industrial development decision-making.

Figure 1. The distribution of characteristic Cultural Industry in China.

Several tools can be used to achieve the topic of this study's target. Among them, the SWOT analysis (SWOT Matrix) is a structured planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in an enterprise venture or in industrial growth. It includes specifying the objective of the topic issue and identifying the internal and external factors that are favorable or unfavorable to achieving that objective [6,7]. SWOT is a preferable method for case analysis in the tourism industry [8–10], which is influenced by both geographical resources and tourists' subjective behaviors. The development of cultural industry in Shaanxi Province is also influenced by both subjective and objective factors, different factors have unequal importance. Therefore, the factors relating to the development of cultural industry can be analyzed by SWOT method. Several studies had reported the development of Shaanxi's cultural industry by using the SWOT method [11–13]; however, most of them were qualitative analysis with subjective uncertainty. This will reduce their value for academic reference. To describe the developmental problem of cultural industry in a more accurate and objective route, quantitative method is necessary to introduce in the SWOT analysis.

The analytic hierarchy process (AHP) is a technique for organizing and analyzing complex decisions based on mathematics and psychology [14]. The AHP uses "pair-wise comparison" to give the SWOT factors with quantitative measurement and supplements the shortcomings of simple SWOT analysis. Subramanian presented a detailed review of the application of SWOT-AHP analysis [6]; socio economic decision-making, risk assessments and development strategy are the important fields of the SWOT-AHP analysis [15,16].

Therefore, in this study, we firstly used the SWOT method to analyze the internal and external factors and point out the problems, opportunities and threats for cultural industry in Shaanxi Province. Then the AHP method was performed to quantify these internal and external factors to arrive at quantitative strategies on the sustainable development. Finally, the results of SWOT-AHP analysis were evaluated by interview method with representative experts.

2. Materials and Methods

Referencing published reports [17,18], the steps of our methodology were designed as following:

Step 1: Classify and determine the main and subfactors of the strengths, weaknesses, opportunities, and threats by the questionnaire.

Step 2: Determine the preference in pair-wise comparison of the main and subfactors through the Delphi method.

Step 3: Calculate the priorities of the main and subfactors of SWOT using AHP method.

Step 4: Graph the strategic quadrilaterals coordination and quantitatively determine the development strategy of cultural industry in Shaanxi Province.

Step 5: Specify the strategies of the sustainable development of cultural industry in Shaanxi Province.

Step 6: Discuss and evaluate the results by interview to experts.

2.1. SWOT Analysis

To improve the adaption and accuracy of SWOT analysis, a back-to-back questionnaire was carried out [19]. We invited a total of 100 Experts who live and work in Shaanxi Province, they are officials from cultural and tourist administration, businessmen from cultural companies and travel agencies, and researchers from colleges or institutes. The professional composition, knowledge gap, administrative position, and detail careers of the experts are shown in Figure 2. The experts covered the policy-making, academic research and market aspects of cultural industry. We can learn their different views on the cultural industry in Shaanxi Province based on their position, role in market, and personal sakes. It is helpful for this study on an impartial standpoint and provide more accurate and referential results.
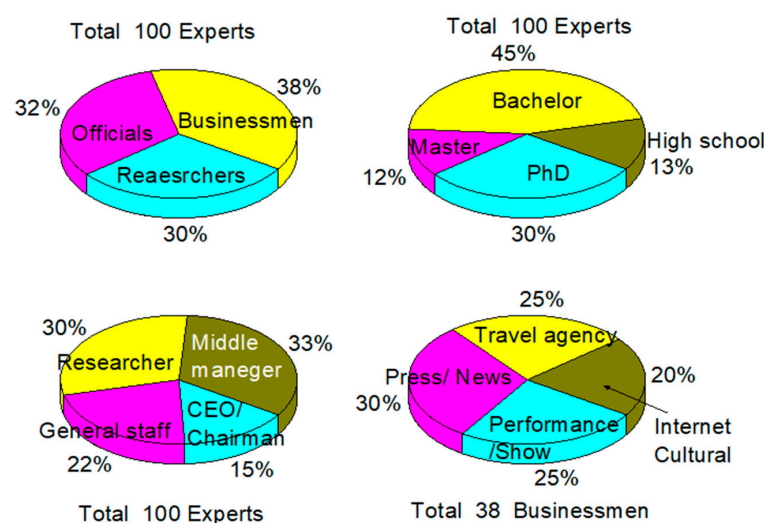

Figure 2. The composition, education status, administrative position and detail distribution on cultural industry of experts.

In the questionnaire, for each SWOT group, the experts were asked to choose the three most important factors they considered. The form of the questionnaire is attached in the supplemental documents. We allowed the experts to raise new factors besides our options presented. On the basis of the questionnaire survey, the factors relating to the development of cultural industry in Shaanxi province were summarized and listed in Table 1. The parentheses after each factor indicates the number of experts who selected this factor as most priority. More than 85% of the experts chosen the factors listed in Table 1. It indicated they reached a high agreement on the understanding of main factors in questionnaire about the development of cultural industry in Shaanxi.

Table 1. Strength, Weakness, Opportunity, Threat (SWOT) factors relating with the development of cultural industry in Shaanxi Province.

Strengths	Opportunities
S1 Abundant resources in landscape and history (51/100)	O1 Supporting by National development strategy (35/100)
S2 Regional accumulation of cultural industry and unique brand (25/100)	O2 Huge demand in Chinese market (29/100)
S3 Traffic facility and intellectual support (13/100)	O3 Globalization and chance in international market (21/100)
Weaknesses	Threats
W1 Developing region of economy and society (39/100)	T1 Cultural shock from western county (35/100)
W2Backward in values and governmental execution (29/100)	T2Competition from domestic and intra-regional (28/100)
W3Lack of professional practitioners in cultural industry (17/100)	T3 Land desertification and environmental stress (25/100)

2.2. AHP Analysis

In AHP analysis, the pair-wise comparison was carried out in the SWOT factors shown in Table 1. The questionnaire included a rating scale to weigh each factor relative to the other. The AHP uses "pair-wise comparison" and matrix algebra to weight the importance of each factor between SWOT groups and the internal factors of each group. As shown in Table 2, the value of pair-wise comparison varies from 1 to 9, 1/1 means the equal importance of the two factors while the 9/1 means the former is extremely important [20]. The experts evaluated whether the factors in pair are equally important or one is more important than the other by given the comparison score in the questionnaire. The scores of pair-wise comparisons from experts were weighted proportionately to obtain the final numerical rating in rounding.

Table 2. Saaty's preferences in the pair-wise comparison process.

Judgments of Preferences between Criterion i and Criterion j	Numerical Rating
Ci and Cj is equally important to	1
Ci is slightly more important than Cj	3
Ci is strongly more important than Cj	5
Ci is very strongly more important than Cj	7
Ci is extremely more important than Cj	9
Intermediate values	2,4,6,8

The comparison results were transformed into positive pair-wise comparison matrix A [21], illustrated by Equation (1):

$$A = \begin{pmatrix} 1 & a_1/a_2 & \cdots & a_1/a_n \\ a_2/a_1 & 1 & \cdots & a_2/a_n \\ \vdots & \vdots & \ddots & \vdots \\ a_n/a_1 & a_n/a_2 & \cdots & 1 \end{pmatrix} \tag{1}$$

where $a_i/a_j (i = 1, 2, 3, \ldots, n, j = 1, 2, 3, \ldots, i \neq j)$ is the relative importance of SWOT factors or SWOT groups obtained from pair-wise comparison. The value of element a_1/a_2 is equal with the reciprocal value of a_2/a_1 and the same in all similar cases.

Then the matrix A was normalized to A':

$$A\prime = \begin{pmatrix} \bar{a}_{11} & \bar{a}_{12} & \cdots & \bar{a}_{1n} \\ \bar{a}_{21} & \bar{a}_{22} & \cdots & \bar{a}_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \bar{a}_{n1} & \bar{a}_{n2} & \cdots & \bar{a}_{nn} \end{pmatrix} \tag{2}$$

where $\bar{a}_{ij}$ is calculated by:

$$\bar{a}_{ij} = \frac{a_{ij}}{a_{i1} + a_{i2} + ... + a_{in}} \tag{3}$$

When the matrix of pair-wise comparison contains inconsistency [22], the weight of a factor *W* can be estimated by:

$$(A - \lambda_{\max} I)W = 0 \tag{4}$$

where $\lambda_{\max}$ is the largest eigenfactor of matrix *A* of size *n*; and *I* is the identity matrix of size *n*.

If the matrix doses not have any inconsistency, the weight *W* of a subfactor is calculated by:

$$W = \frac{\bar{a}_{11} + \bar{a}_{12} + ... + \bar{a}_{1n}}{(\bar{a}_{11} + \bar{a}_{12} + ... + \bar{a}_{1n}) + (\bar{a}_{21} + \bar{a}_{22} + ... + \bar{a}_{2n}) + ... + (\bar{a}_{n1} + \bar{a}_{n2} + ... + \bar{a}_{nn})} \tag{5}$$

The consistency of the pair-wise comparison is estimated by [16]:

$$CI = \frac{(\lambda_{\max} - n)}{n - 1} \tag{6}$$

$$CR = \frac{CI}{RI} \tag{7}$$

where *CI* is the consistency index; *RI* is random index generated for a random matrix of order *n*, and *CR* is consistency ratio independent of *n*. The general rule is that $CR \leq 0.1$ should be maintained for the matrix to be consistent [23]. Otherwise, all or some of the comparisons must be repeated in order to resolve the inconsistencies of the pair-wise comparisons.

With the resulting weight in pair-wise comparison, eventually, the priority score of a SWOT subfactor can be calculated by [24];

$$\text{Piority score} = W \times \text{scale parameter} \tag{8}$$

The scale parameter is considered as the actual level of the role of each factor, we asked the experts to consider economic and environmental benefits as two equally important control criteria to give a rank between 1 to 4 [16]. The positive value indicates Strength and Opportunity, while the negative value shows Weakness and Threat.

2.3. Strategic Quadrilaterals Analysis

To quantitatively determine the style and intensity of different development strategies, the strategic quadrilaterals coordination was graphed using the calculated global priority scores in the AHP analysis [25,26]. The strategic development type and intensity of a SWOT-AHP analysis in the quadrilateral graph was expressed by the parameter of strategic azimuth angle θ and strategic intensity coefficient ρ, respectively. A polar coordinate (θ, ρ) was determined as the strategic vector. The barycentric coordinates $G(x,y)$ of the strategic quadrilateral , which determined the strategic style, was calculated as follows(Equation (5)):

$$G(x,y) = G(\sum \frac{xi}{4}, \sum \frac{yi}{4}) = (0.377, 0.156) \tag{9}$$

where x_i and y_i is the global priority score on horizontal and vertical axis of S, W, O and T in the strategic quadrilateral.

The strategic azimuth angle θ was calculated as:

$$\theta = \arctan\frac{y}{x} = \arctan\frac{0.156}{0.377} = 22.48^o\,(0 \leq \theta \leq 2\pi) \tag{10}$$

The strategic intensity coefficient ρ was calculated as 0.545 by:

$$\rho = \frac{Pi}{Pi + Ni}, \quad Ni = T' \times W', \quad Pi = O' \times S' \tag{11}$$

where *Pi*, *S'* and *O'* indicated the positive intensity of strategies, global priority score of strengths and global priority score of opportunities, respectively. The *Ni*, *T'* and *W'* are the negative intensity of strategies, global priority score of threaten and global priority score of Weakness, respectively.

2.4.Results Evaluation by Interviews to Experts

The results and strategies obtained from the SWOT-AHP analysis were resubmitted to the experts in Figure 2 by email. The experts were asked to assess whether the results meet their expectation, whether the results are reasonable and appropriate, and whether they are willing to provide additional comments in interview. The interviews to experts were achieved through face to face, telephone, or on social APP (Application) with real-time communication. The experts were asked to rate each part (factors, AHP priority, and strategies) in three ranks. The score of three ranks, 1–4, 5–7, and 8–10 indicated disagree, acceptable, agree of the results, respectively.

3. Results

3.1. The Overview of Cultural Industry in Shaanxi Province

Shaanxi Province is located in northwest China with a total area of 205,800 square kilometers; the provincial population was 38 million in 2017.In the recorded history of 3000 years since the Zhou dynasty (1000B.C.E.), Shaanxi has accumulated unique intangible cultural heritages together with the natural landscapes and historical sites (Figure 3). It is the rich resourcesof the development of the cultural industry in Shaanxi. Around the provincial capital Xi'an, the historical heritages, tombs of Han/Tang dynasties and Qinshihuang Terra-Cotta Warriors, as well as the landscape of Huashan and QinlingMountain constitute the Han-Tang culture circle and related enterprises. In the northern part of the Province, Yan'an is the revolutionary center of modern China, Red Cultural and related business are its feathers. The Sanguo (Three Kingdoms) culture was located in the southern part of the province; the city of Hanzhong is the birthplace of the Han Dynasty and Sanguoperiods.

Figure 3. The natural and cultural resources in Shaanxi Province relating to cultural industry.

Tourism is the pillar of cultural industry in Shaanxi Province, while the press and publishing, electronic media and entertainment industry are also developing regularly. In 2017, the added value of cultural industry in Shaanxi Province is approximately 90 billion RMB (14 billion US dollar) [27]. This is the second highest number in Northwest China, but it ranks only 15th in the country. By 2020, the added value of the cultural industry will account for 6% of GDP [28]. The Shaanxi Culture Industry Investment Group is the largest state-owned enterprise focusing on native culture; its scope includes tourism, cultural finance, art investment modern media and cultural business. By the end of 2017, total assets offive biggest state-owned cultural enterprises, including Shaanxi Culture Industry Investment Group, West Pictures, Shaanxi Performing, reaches 302.1 billion RMB (47.2 billion US dollar) with a 9.562 billion RMB (1.5 billion US dollar) income [29]. However, the cultural industrylacks the powerful private enterprises in Shaanxi compared with the East China.

3.2. SWOT Analysis of the Cultural Industry in Shaanxi Province

3.2.1. Strength

S1 Abundant resources in landscape and history

Shaanxi is the one of the most ancient cultural regions in China, with about 3000 years of civilization from the Zhou Dynasty. There are 11 World CulturalHeritages and 5 National 5A tourist attractions in Shaanxi Province, included the world-famous Terra-cotta Warriors and Horses of QinShiHuang. In the northern part of the province, the Loess Plateau and the Yellow River construct a unique Shaanxi landscape, which are different from the scenery in eastern China. These splendid historical and landscape heritages are the unique advantages of Shaanxi Province comparing with other provinces in China. The ancient culture, landscape and historical heritage provide a complete resource for the development of Shaanxi's cultural industry.

S2 Regional accumulation of cultural industry and unique brand

Due to the geographical distribution of historical heritage and landscapes, the development of tourism in Shaanxi Province shows a character of regionalagglomeration [30]. The historical tourism in Xi'an and redculturaltourism in Yan'anpromote the development of relating travel agencies and corresponding services in those areas. It gradually forms the tourism cluster in Xi'an and the red patriotic cultural cluster in Yan'an, respectively. The aggregation of cultural industry also generates relating cultural brands in Shaanxi. The Tang Dynasty Tour, Red Cultural Tour and Tang Opera (Changhen Opera, Simulated Tang Opera) are famous among tourists from China and around the world.

S3 Traffic facility and intellectual support

Shaanxi province is located at the center of the Chinese administrative region. The opening of Xi (Xi'an)-Cheng (Cheng Du) high-speed railway and Zheng (Zhengzhou)-Xi (Xi'an) high-speed railway connect Shaanxi Province with Eastern China and Southwest China (in Figure 4). The 300 km/h railway provides passengers for convenient to enter Shaanxi Province for business and travelling. It reduces the travel time to less than 10 hours from Shanghai, Guangzhou and Beijing to Xi'an. Intensive people flow brings potential consumers to the market of cultural industry. Xi'an, as the provincial capital, is the science and education center of Northwest China. More than 120 universities and institutes provide cultural atmosphere and intellectual support for the development of the cultural industry. By 2017, the number of undergraduate students in Xi'an exceeds 1.2 million. These people also are the potential customers in cultural industries.
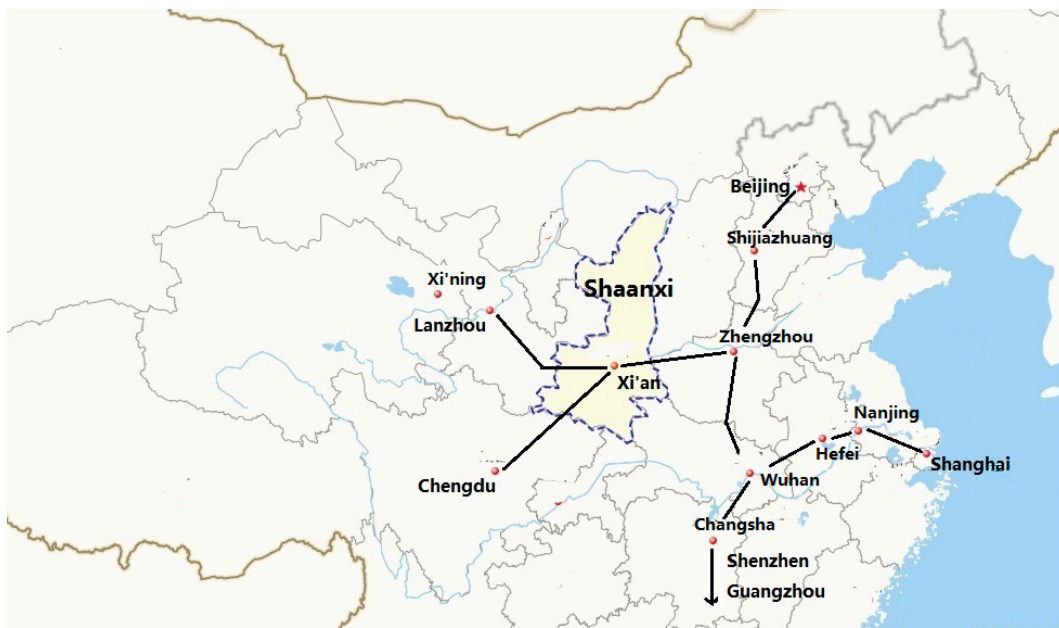
Figure 4. Thehighspeed railways connect Shaanxi with Eastand Southeast China

3.2.2. Weakness

W1 Developing region of economy and society

Shaanxi province is a developing region in China, its per capita GDP (8482$, 2017) is only half of the developed Eastern China (16,000–19,000US dollar, Beijing, Shanghai, Jiangsu) [31]. The backward economy suppressed the vitality of cultural investment and consumption. The urban Engel's coefficient of Shaanxi Province (33%, 2016) is higher than the national average (30%, 2016). Excessive living expenses limit the consumption of local customers in the cultural market. In 2015, the per capita expenditure on culture and entertainment of urban residents in Shaanxi was only 973.6 RMB (152US dollar) [32], comparing with 2408 RMB (376US dollar) in Shanghai in 2012.

W2 Backward inconception andgovernmental execution

Shaanxi Province is an inland region with a long history of agriculture civilization;the social openness of Shaanxi Province lags behind the coastal provinces in East China. This leads to low administrative efficiency of Shaanxi's local government and the lack of the service consciousness to the enterprises. Due to the excessive administrative intervention, cultural companies will spend more time on the establishing approval than inEast China. The conservative concept also inhibits the creativity of cultural industry. It restricts themarketization of the cultural industry andseriously reduces the investment intent of the external capitals.

W3 Lack of professionalpractitioners incultural industry

The universities and institutes in Shaanxi Province mainly focus on engineering and technology; it lacksspecific institutions in culturalindustrialization. It leads to a shortage of professionals in cultural industry, especially entrepreneurs who can integrate industrial capital, financial capital and cultural resources together. The cultural industry needs a group of far-sighted investors, planners and professional managers, as well as professionalswho are familiar with and able to use Internet media and high-techmethods.

3.2.3. Opportunities

O1 Supporting by National development strategy

Since the release of the Revitalization Plan of Cultural Industries in 2009 [29], the policies of central and local governmentencouraged the development of cultural industries. According to the nineteenth Five Years Strategic Plan, Northern Shaanxi and Southern Shaanxi are candidates for the regional coordinated development program from 2017. The cultural industry has already been linked to the economic development in these regions. The Shaanxi Provincial Government has also issuedseveral financial policies to support the development of provincialcultural industry (Table 3) [33]. In 2018, the provincialgovernment establishes a special fund for the development of provincial cultural industries. The diversified funding and policy support provide a good opportunity for the cultural industries in Shaanxi Province.

Table 3. The supporting policies relating to cultural industry in Shaanxi Province.

Issued Year	Name	Main Contents
March 2012	Opinions of Shaanxi Province on fiscal and taxation policies to support the development and prosperity of culture	guide policy
September 2016	Opinions of Shaanxi provincial government on implementing the project to promote the development of cultural industry	guide policy
September 2017	Policies relating to further accelerating on development of provincial Cultural Industry	practical measurements
January 2018	Policies for the administration of special funds for the development of cultural industries at the provincial level	practical measurements
May 2018	Tax policy for supporting the development of cultural industry in Shaanxi Province	Tax deduction policy

O2 Huge demand in Chinese market

The continuous development of China's economy brings a gradual increment in cultural consumption. In China, this usually includes travel, watching shows, paying internet video servicesand reading paper publications. In 2016, the added value of the culture and related industries reached 3.0785 trillion RMB (481 billion US dollar), up13.0% over the previous year. Shaanxi's culture and landscape have a unique attraction to the consumers from Eastern China. The growing demand provides market space for the development of Shaanxi's cultural industry in future.

O3 Globalization and chance in international market

In the background of globalization, the fusion of Eastern and Western cultures in today's society is increasingly intense. Xi'an (Chang an) is the starting point of the ancient Silk Road from the Han Dynasty (in aroundthe first century B.C.E.). Most of the Europeans' impressions of Chinese culture is represented by Shaanxi Culture. Today, Shaanxi is also the starting point for the new Silk Road Economic Belt. It provides an excellent opportunity for Shaanxi's culture industry to develop European and international markets in tourism and performing enterprise.

3.2.4. Threats

T1 Cultural shock from Western County

The Chinese native culture has encountered the impact of Western Culture in recent years. The cultural industry also facing the same risks, the Shaanxi Culture is a characteristic agriculture civilization, presenting a traditional and conservative aspect of Chinese culture. Therefore, Shaanxi Culture is more sensitive to the impact of opening to Western Culture. Christmas and Saint Valentine's Day replace traditional Spring Festival and Qixi Day (7 July on lunar calendar) as the most popular

festivals among young people in Xi'an. Films from United States and Europe occupy the top of the hot showing box office in Shaanxi. The spread of Western Culture weakens therecognition of local Shaanxi Culture among native young consumers. This will reduce the enthusiasm of young people to engage in local cultural industries and to consume products of native cultural industries.

T2 Competition from domestic and intra-regional

The market expansion of Shaanxi's cultural industry also encounters competition from domestic and intra-regional areas. The developed cultural industries in Eastern China squeeze themarket space for the Shaanxi's cultural industries toward east. Facing with the well-developed cultural market in Eastern China, Shaanxi's cultural industry is at a disadvantageous position in competition. In recent times, the northwest provinces have recognized their unique natural and cultural features and begun to attach importance to cultural industry. Gansu Province emphasizes the culture and charm of the Silk Road. Xinjiang Autonomous Region focuses on ethnic culture and the natural landscape. Because of the similar cultural background and landscape, competition from within the regions will divert tourists and related cultural consumption.

T3 Land desertification and environmental stress

Shaanxi Province is a severe water-shortage area in China, the special landform of the Loess Plateau tends to causesoil erosion. Desertification seriously threatens the ecological environment of the province. Environmental protection requires reducing the ecological impact of human activities such as tourist and basic construction. Meanwhile, desertification would destroy the natural morphology of tourist spots, which menaces the development of the tourism industry.

3.3. AHP Analysis of the SWOT Factors

Based on the SWOT analysis results, the hierarchy of the issue was constructed as shown in Figure 5. In this case it is composed of the goal, the main objective (strengths (S), weaknesses (W), opportunities (O), threats (T)), the factors and finally the alternative strategies. Using the pair-wise comparison, in Table 4, the judgment matrixes were filled by the experts. The independent feedbacks of the pair-wise comparison were analyzed and the consistent results were given in Tables 5 and 6.
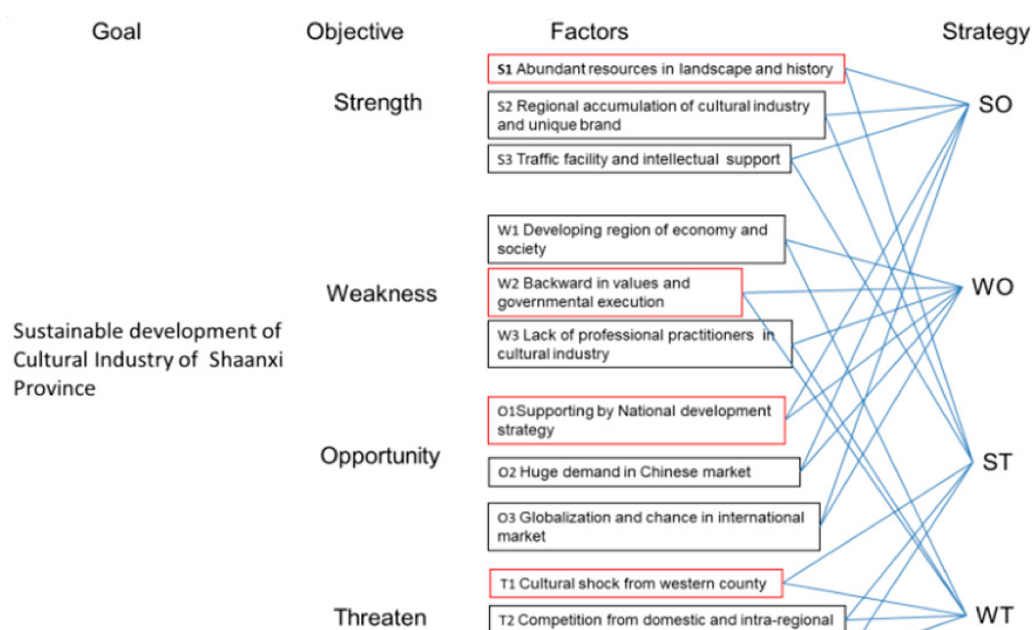

Figure 5. Hierarchical SWOT matrix of sustainable development of cultural industry in Shaanxi Province.

Table 4. The judgment matrix within SWOT group.

SWOT Group	S	W	O	T
S	1	2	5	7
W	1/2	1	2	6
O	1/5	1/2	1	3
T	1/7	1/6	1/3	1

Table 5. The judgment matrix, weight and priority subfactors in individual S, W, O and T group.

	S	S1	S2	S3	Weight	Scale Parameter	Priority Score	Global Priority Score
S	S1	1	5	3	0.596	4	2.384	
	S2	1/5	1	5	0.282	3	0.846	3.470
	S3	1/3	1/5	1	0.12	2	0.240	
	W	W1	W2	W3	Weight	Scale parameter	Priority score	
W	W1	1	5	6	0.345	−3	−1.035	
	W2	1/5	1	3	0.372	−3	−1.116	−2.717
	W3	1/6	1/3	1	0.283	−2	−0.566	
	O	O1	O2	O3	Weight	Scale parameter	Priority score	
O	O1	1	3	4	0.346	4	1.384	
	O2	1/3	1	3	0.379	2	0.758	2.965
	O3	1/4	1/3	1	0.274	3	0.823	
	T	T1	T2	T3	Weight	Scale parameter	Priority score	
T	T1	1	2	5	0.337	−3	−1.011	
	T2	1/2	1	3	0.344	−2	−0.688	−2.654
	T3	1/5	1/3	1	0.318	−3	−0.955	

Table 6. Priorities and consistency ratios of comparisons of the SWOT groups and factors

SWOT	Advantage	SWOT Factors	C.R	Advantage in Group	Total Advantage
Strength	0.259	S1 Abundant resources in landscape and history	0.05	0.596	0.014
		S2 Regional accumulation of cultural industry and unique brand		0.282	0.023
		S3 Traffic facility and intellectual support		0.120	0.052
Weakness	0.260	W1 Developing region of economy and society	0.04	0.345	0.090
		W2 Backward in values and governmental execution		0.372	0.077
		W3 Lack of professional practitioners in cultural industry		0.283	0.074
Oppotunity	0.286	O1 Supporting by National development strategy	0.07	0346	0.090
		O2 Huge demand in Chinese market		0.379	0.099
		O3 Globalization and chance in international market		0.274	0.071
Threat	0.196	T1 Cultural shock from western county	0.004	0.337	0.066
		T2 Competition from domestic and intra-regional		0.344	0.067
		T3 Land desertification and environmental stress		0.318	0.062

In SWOT groups, the opportunities and strengths have a larger weight than the other two factors. This indicated the experts gave a positive evaluation on the present cultural industry. The smallest factor is threat; its weight is 0.196. The abundant resource in landscape and history, backward in values and governmental execution, huge demand in Chinese market, and competition from domestic and intra-regional has the priority than other subfactors in individual group, respectively.

To quantitatively determine the development strategies, the global priority score of Strengths, Weaknesses, Opportunities and Threats, was calculated in Table 5. The four half-dimension coordinate system was created with four variables (overall priority score of S and O defined as positive semi-axis;

W and T as negative semi-axis). And the strategic quadrilateral graph (Figure 6) was made by connecting the four points (The *S'*, *W'*, *O'* and *T'* indicates the global priority score of S, W, O and T) in sequence, which represented the strategic position of development of cultural industry in Shaanxi Province.
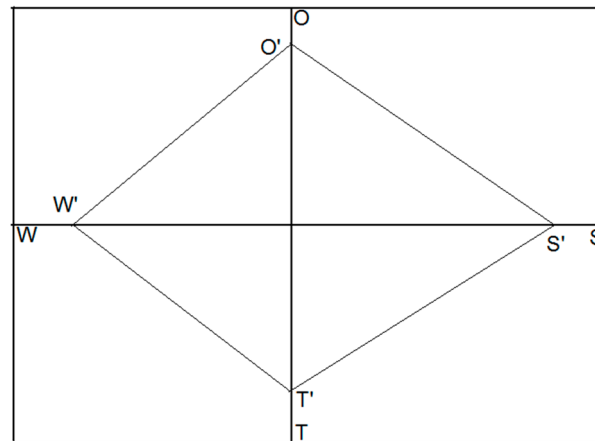

Figure 6. Strategic quadrilaterals of development strategies of edible oil industry in Northwest China.

Therefore, the vector of strategies (θ, ρ) was determined as (22.48°, 0.545). Based on above analysis, the strategic styles and strategic intensity are shown in Figure 7. The vector of strategies (θ, ρ) locates at the pioneering strategic zone; it indicates the SO strategy has the priority in all of the alternative strategies. The goal of developing cultural industry in Shaanxi is positive and prospective. It is accordance with the result from the questionnaire in SWOT analysis.
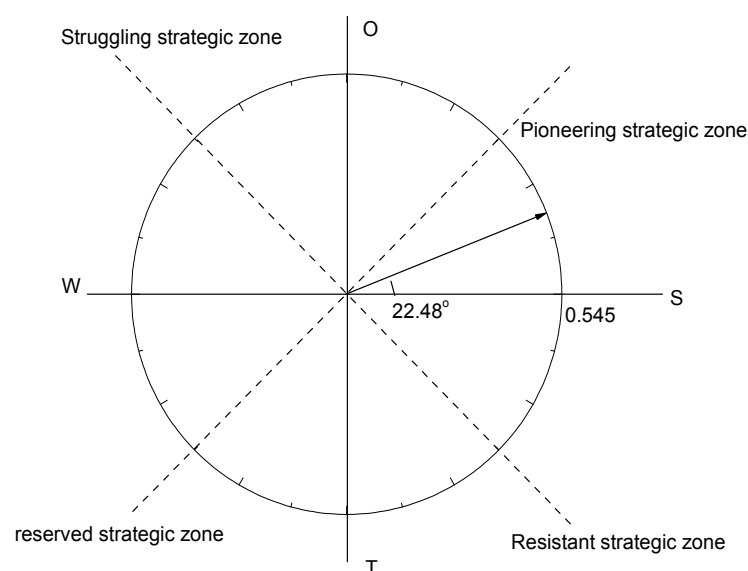

Figure 7. Strategic styles and strategic intensity of the edible oil industry in Northwest China

3.4. Reevaluation of Results by Experts Interviews

The SWOT factors, AHP priority and strategies are resubmitted to the former experts, they gave their scores on the results (shown in Table 7) in the interviews. The scores from experts in different careers (officials, researchers, and businessmen) do not shown significant difference, at least over 70% (except for strategies sector ranked by the researchers) of the experts agree with the results of

this study. No more than 10% of the experts disagree with the results of this study. It indicated the results concluded from the questionnaires have good reproducibility and the method of this study is convincible. The experts also give us several implications based on the results we resubmitted, and we included them as a part of conclusion section.

Table 7. The re-evaluation of SWOT-AHP results by experts in interview.

	Officials 28 Persons			Researchers 30 Persons			Businessmen 36 Persons		
Score	1–4	5–7	8–10	1–4	5–7	8–10	1–4	5–7	8–10
SWOT factors	-	11%	86%	3%	17%	80%	-	3%	89%
AHP priority	7%	14%	75%	7%	20%	70%	3%	3%	89%
Strategies	7%	14%	71%	3%	23%	60%	3%	6%	80%
Overall	-	21%	75%	3%	20%	72%	6%	3%	86%

"-" means the experts do not give scores in this rank.

4. Discussion

Above analysis indicated the positive pioneering strategy is the appropriate choice for Shaanxi Province to develop the cultural industry. In Figure 7, the strength and opportunity are the axis of the pioneering quadrant; therefore, the optimized SO strategies are concluded as blow:

SO1 Expand global market with the "Belt and Road" Project

The "Belt and Road" Project will not only promote economic cooperation but also facilitate the spread of cultural industry.The abundant natural and cultural resources in Shaanxi are the biggest advantages to expand in the global market. With the help of the "Belt and Road" Project initiative, it proposes to use the special attraction of Shaanxi culture to expand the global market, especially for the European market. The European market has a mature concept for cultural consumption and developed economy, it is the best choice for the global development of Shaanxi cultural industry.

SO2 Enhance the investment on cultural business

The rapid economic development in Shaanxi Province will bring huge demand to cultural industry consumption. To meet the increasing market demand, the investment in cultural industries, including infrastructure construction, tourist reception, cultural performance, publishing, should be reinforced. Shaanxi should also pay attention to the extension of the tourism chain as well as therelevant cultural supporting industries. To reduce the over-reliance on tourism, the publishing, performance and other diversity cultural industries are preferential to develop in Shaanxi Province.

To deal with the Weaknesses and Threats, the countermeasures of cultural industry in Shaanxi Province can be addressed as:

WT1 Reform the concepts and values to elevate efficiency and competiveness

It is preferable to abandon the idea that cultural industries are public welfare, emphasize the rational profit of cultural industriesand stimulate the market vitality of cultural enterprises. The role of the government may change from operator to supervisor and, while the existing provincial cultural companies are better to deprive off from the governmental management and independently operate under the market regulars.

WT2 Accumulate professional talents and skilled employees in cultural industry

The government and related companies should adopt various preferential conditions to attract talented and skilled employees from the developed eastern coastal regions, especially those who have a cultural background and understand the market operations of cultural industry. Sufficient reserve of human resources is an important condition for the sustainable development of cultural industries in

Shaanxi Province. Talent introduction needs preferential policies supported by the local government, such as competitive salaries, child education, and housing.

Fresh markets and new investment will promote the continuous expansion of cultural industry in Shaanxi. The improvement of social concept and governmental efficiency will attract and retain external investment in the long run. Adequate talent reserve ensures that the cultural industries can employ enough staff to broaden their business in Shaanxi. Both of the strategies are crucial to the sustainable development of cultural industry. In other studies, Chen [34,35] also proposed the reform on financing channel, policy and regular, and resource are suitable strategies for the sustainable development of cultural industry in Shaanxi.

5. Conclusions

The SWOT-AHP analysis quantitatively clarified that strengths and opportunities are dominant in the factors related to the sustainable development of cultural industry in Shaanxi Province. The overall evaluation indicated the positive developmentstrategy is preferable for the present cultural industry from the result of quantitative strategy analysis.

In summary, this study presented several implications from theoretical and practical aspects.

On theoretical aspects, the SWOT-AHP can quantitatively and reasonably reflect the current situation of Shaanxi's cultural industry and provide direction on development strategy. It indicated the effectiveness and adaptability of this decision-making tool in industry and relevant market analysis. It also provides a methodological reference for the analysis of the cultural or tourism industries in other areas of China.

On practical aspects, to achieve the sustainable development of cultural industry, several implications can be drawn from the conclusion of SWOT-AHP analysis.

Resource sustainability: Shaanxi Province should take environmental protection as the premise of developing tourism projects; the scale of the scenic area should be compatible with the bearing capacity of the environment. The construction of tourist projects in environmentally vulnerable areas should be restricted. For the existed tourist attractions, the management authority should continue to pay attention to the prevention and control of soil erosion.

Tourism sustainability: It is better to extend the chain of existing tourism attractions, reduce the ticket price, improve the level of catering, accommodation and service, and provide a better experience to the tourists. The innovation of programs, such as parent-child programs and high participation programs, will help to attract family and group tourists. Meanwhile, regularly updating tourism programs and topic shows (such as operas) in the scenic area will attract more repeat visitors.

Industry sustainability: It is better to strengthen the innovation in the full industrial chain in Shaanxi Province, especially in the developing of new cultural industry based on the unique Shaanxi culture. The importance of Internet and social APP as the carriers of cultural industry in globalization should be emphasized. The number of startups, especially for the vigorous small size companies in cultural industry, should better to increase annually in Shaanxi Province.

Policy sustainability: The government is recommended to organize relevant cultural industry enterprises to promote their business in countries of the Silk Road economic belt. It is better to continuously improve the government's service awareness and attract more external investment in cultural industry. The government should also annually revise its plans and formulate corresponding incentive policies according to the development of the cultural industry. The introduction of cultural talents should also be an important part of the policy of talent introduction.

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