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## Original Research Article

### **An analysis of the innovation mechanism to leisure agriculture experience from the perspective of artificial intelligence**

#### **Abstract**

With the continuous development of human society and the improvement of national economy, remarkable achievements have been made in scientific and technological, R & D and innovation, especially in the research of artificial intelligence (AI) technology. It has been applied not only in all walks of life in China, but also in agricultural production and leisure agriculture. Under the background of Promoting Rural Revitalization by informatization, it is an inevitable direction to realize smart countryside and promote the development of leisure agriculture. Using artificial intelligence technology to realize the comprehensive and visual operation of leisure agriculture experience is a very good choice. This paper analyzes the leisure agriculture experience from the perspective of artificial intelligence technology.

Keywords: artificial intelligence, leisure agriculture, innovation

#### **1.Introduction**

##### **1.1Research Background**

Science and technology have an important position and role in society and are the first productive force of the country [1]. With the continuous development and progress of human society and various industry fields constantly striving to seek breakthroughs in different directions, making the whole society set off a variety of scientific research projects research and development boom, the future of artificial intelligence technology will have a transformative effect on economic development, AI industry is the carrier of AI technology, therefore, the high quality development of AI industry has an important role in the high quality development of the economy [2]. In the context of this powerful era, AI, as the core driver of the new round of global technological and industrial revolution, is increasingly mature in its theory and technology, and can be closely associated with almost any field or industry, such as tourism.

Although the influence of the epidemic, people's travel will be more restricted. The national economy is constantly restoring the original level or even an upward trend while the epidemic is gradually controlled under the various policies issued by the state. Moreover, the growing affluence of people's lives and the opening of the national holiday policy, people's motivation to travel will reach an unprecedented height. And the travel fever will continue to rise. In this form, people will no longer be satisfied with a single form of tourism, and the traditional way of tourism (purely visual viewing) is gradually eliminated.

In the era of experience economy, and the experience attribute of tourism determines

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that tourism is a fertile ground for the industry of experience economy, and the reasonable development of experience tourism products is the key to the development of experience tourism [3]. For most working people or retirees, they prefer to experience life, find fun, return to nature and return to the basics, which is an important factor for the rapid development of leisure agricultural tourism. However, leisure agricultural started late in our country, has weak roots, and lacks the support of relevant scientific and technological research. It presents to the public an imperfect and incoherent experience process, which urgently requires the developers to develop, improve, and enhance on the existing basis, to build a good reputation, to explore a better development model of leisure agriculture on top of technology, and to seek better benefits.

### 1.2. Purpose of the study

Leisure agriculture first originated in the 20th century in developed countries in the Western country, and the concept of its development was developed through different aspects of tourism and leisure in the countryside. Such as the natural scenery of agriculture and different industrial characteristics of different places can be met. Its development is mainly to attract consumer groups from the city, through personal picking, gardening and other field experience, to increase participation and release stress, thus promoting the deep development of rural economy.

According to the above research background, the development of intelligent leisure agriculture is not perfect, especially the major tourism enterprises gradually reduce the research for leisure agriculture tourism, and the research for leisure agriculture tourism is no longer as important as before after the epidemic. The purpose of this paper is to analyze all aspects of intelligent leisure tourism, grasp the needs of customers according to the general environment unique to our country, combine leisure agricultural tourism with modern intelligent technology, analyze the development prospects of intelligent leisure agricultural tourism in our country, the actual situation of intelligent leisure agricultural tourism in our country and service marketing theory for organic combination, to provide a basis for developing a marketing strategy suitable for intelligent leisure agri-tourism services and adapting to the Chinese market business environment as soon as possible.

## 2.Literature Review

### 1. The concept of Artificial Intelligence

Artificial intelligence is a branch of computer. Since the 1970s, it has been known as one of the three cutting-edge technologies in the world (Space technology, Energy technology and Artificial intelligence). It is also considered to be one of the three cutting-edge technologies (Genetic engineering, Nanoscience and Artificial intelligence) in the 21st century. Because it has achieved rapid development in recent 30 years, it has been widely used in many subject fields, and has achieved fruitful results. Artificial intelligence has gradually become an independent branch, and has become a system in theory and practice. The development trend of artificial intelligence technology will start from the relatively mature fields at present and try and practice in

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different fields. In the future, there may be breakthroughs in unsupervised learning, knowledge reasoning and other directions [4].

At this stage, science and technology are changing with each passing day. Industrial revolution and technological revolution have greatly improved social productivity. Smart tourism is an advanced stage of tourism informatization [5]. From its essence and connotation and its application in tourism practice, we can find its internal logic and dynamic mechanism enabling the high-quality development of tourism. Taking agricultural development as an example, artificial intelligence technology is widely used in agricultural production. Cloud computing, big data, Internet of things, block chain and 5G all have cross linkage with agricultural production and are more and more closely related to agricultural development. As early as 2015, the National Tourism Administration has issued the guidance on promoting the development of smart tourism, which requires the development of characteristic tourism based on ecological agriculture, gradually improve the characteristics, convenience and intelligence of the tourism industry, and vigorously promote the sustainable and healthy development of smart tourism. In 2021, the No. 1 central document requested further improvement of the mechanism and resources in the field of agricultural science and technology, and the development of leisure agriculture and rural tourism on the basis of rural characteristic tourism resources.

In this context, the integration between leisure agriculture and cultural tourism industry has gradually become the starting point for the implementation of Rural Revitalization Strategy, which is of great benefit to promote agricultural transformation and upgrading and enhance rural economic development. Combined with the many requirements of the 14th five-years plan for the development of leisure agricultural characteristic tourism, and taking artificial intelligence technology as the starting point, the author systematically expounds the strategies and measures of integrating artificial intelligence technology into leisure agricultural characteristic tourism [6].

## 2.2 The concept of leisure agriculture

Leisure agriculture refers to the leisure and tourism industry in which farmers use various agricultural and rural resources to carry out various food, housing, travel, entertainment and shopping activities to meet the needs of tourists [7]. Leisure agriculture is a new industrial form and consumption format in the process of industrialization, urbanization and agricultural modernization. It is of great significance for changing the mode of agricultural development, adjusting and optimizing the agricultural structure, promoting the integration of three industries, realizing rural revitalization and coordinating the development of urban and rural areas. Despite the rapid growth of leisure agriculture in the country, there are some urgent problems to be solved. Among them, the same leisure agriculture projects, lack of creativity and innovation, and low quality of employees restrict the development of the industry were presented. This has also attracted the attention of many scholars. They have analyzed the technological innovation path, the innovation and entrepreneurship ecosystem, the innovation model, the science and technology support system and the innovation empirical cases of leisure agriculture [8]. Further, they've actively encouraged and

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promoted the innovation and Entrepreneurship of leisure agriculture, so as to improve the level of the whole industry [8]. Leisure agriculture has a very unique industrial positioning and industrial advantages, which is more suitable for the upgrading of the current rural economic resource form and meets the needs of mass consumption [9]. Moreover, when developing leisure agriculture, we should pay attention to its own characteristics. In the process of building leisure agriculture with distinctive characteristics, its theme orientation is particularly important [10].

With the full attention of the party and the state, the cause of popular science has ushered in an unprecedented period of vigorous development. The development plan for science and technology popularization in Tianjin during the 13th Five Year Plan period issued by Tianjin Science and Technology Commission proposes that there will be more than 130 science popularization education bases in Tianjin by 2020. In April 2019, Tianjin issued the opinions on the implementation of vigorously promoting global science popularization, which put forward that the main goal of global science popularization in Tianjin is to establish and improve a global science popularization work system with action in all fields, coverage in all regions, all media communication and participation and sharing by the whole people. After years of development, remarkable results have been achieved. Global popular science is the best time to develop leisure agricultural popular science tourism. With the effective use of the policy support of global science popularization and the market foundation of leisure agriculture, the innovation of science popularization means and the extension of leisure agricultural product line will be realized, and the leisure agricultural science popularization tour will usher in a strong development momentum.

At present, there is no accurate and unified definition of leisure agricultural park. It generally refers to a place that uses production bases such as agriculture, forestry and fishery to display the characteristics of agricultural production and modern science and technology, and provides tourists with tourism services such as sightseeing, leisure and experience related to agricultural production [7]. There are also farms, ecological farms and agricultural demonstration parks. It has the characteristics of agriculture based, leisure oriented, multi industry operation and integration of primary, secondary and tertiary industries, Both productive and sightseeing. Sales of agricultural products, sightseeing tickets, picking, leisure projects, entertainment consumption, catering and accommodation are the revenue models of such enterprises. Leisure agriculture is a new type of business that integrates agriculture and tourism, meets the leisure and recreation needs of tourists, and improves and promotes the "three life" (Ecology, Production and Life) in rural areas [11].

Experiential agriculture refers to the use of the versatility of agriculture and the unique mode of production and management of agriculture to provide people with a variety of consumption experiences such as sightseeing, production and work, leisure and health preservation, entertainment and education [12]. It is a new form of agricultural tourism that enables urban people to experience agriculture and rural life and achieve the purpose of leisure, sightseeing and entertainment. It is different from agriculture in the traditional sense.

Experiential leisure agriculture is based on existing agricultural products to provide

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tourists with a more detailed and comfortable tourism experience [13,14]. For example, leisure agriculture modes such as folk sightseeing village, agricultural education experience Park, ecological agricultural sightseeing park and forest park can enable tourists to get a real entertainment experience and feel the rich rural pleasure and natural landscape atmosphere, so as to achieve the purpose of pleasing body and mind and relaxing themselves. Moreover, with the increasing demand for experiential tourism, people prefer to get joy from participation, so the market demand for leisure agricultural experience will be greater and greater.

### 3. Research methods

The purpose of the study is to explore and analyze the problems and recommendations faced by innovation in leisure agricultural experiences. Leisure agricultural in the suburbs of Luzhou, Sichuan Province is chosen as the target for this study. As there are few studies on leisure agriculture in the suburbs of Luzhou, a qualitative research design is appropriate. In terms of research methodology, we adopt a case study approach, using secondary data collection, as well as actual on-site research visits and interviews to obtain primary data for subsequent data analysis. In terms of theoretical foundation, the study relies on the SWOT analysis proposed by GÜREL and TAT (2017) to collect data literature and develop relevant interview questions as a theoretical basis and analytical framework.

In terms of data collection, the study used the keywords of artificial intelligence, leisure agriculture and rural revitalization to find relevant literature on the CKNI and the university library to obtain the secondary information needed for the study. Then, the study also searched the Internet for news reports on artificial intelligence, leisure agriculture and rural revitalization as keywords to serve as secondary sources for analysis. Lastly, the study was based on the theoretical literature and research objectives to collate an outline of the interviews and to draw up a programme of visits to recreational farms in the suburbs of Luzhou. In order to achieve the objectives of the study and to consider the financial implications and feasibility of the study, we focused on the managers of leisure farm in the suburbs of Luzhou. The interviews were conducted with the people in charge to clarify the problems that leisure agriculture may face when developing AI experiences. The interviews were conducted from November 2021 to January 2022 with a total of three times of interviews in charge of leisure farms in the suburbs of Luzhou.





Fig. 1. Records for the interviewing the leisure farms

## 4.Results And Discussion

### 4.1 Results of the interview

After the investigation team visited the business premises and surrounding agricultural environment in Luzhou, such as farmhouse and Villa, it was found that there was no sign of artificial intelligence in these areas. The main reasons are as follows: First, the management mode is self-management. The farmhouse has its own vegetable plot and poultry raising land, and is run up and down by the farmhouse owner or his family. Second, the organization form is single. The guests of the farmhouse and villa we interviewed are mainly from the surrounding areas and some local student groups. Third, the publicity is relatively narrow, through the understanding of most of the farmhouse and villa publicity still stay in the "person to person" more traditional way of publicity, only a few villa and farmhouse plus douyin app, Kuaishou app and other software to promote themselves. The fourth to join the will of the artificial intelligence is not very strong, through the interview we did master considering strengthening management are using artificial intelligence, learned that generated by the master for are not big and able to manage their own, the cost is not high and the government of recycling and demolition of factors is not a strong willingness to use artificial intelligence or intelligent machinery are also help management. Much of the surrounding land has been reclaimed by the government for planting fruit groves. In order to maintain the regular operation mode, some of the resort has no strong intention to introduce artificial intelligence equipment, but the owners of the farmhouse and resort said that if the cost is acceptable, they can introduce experience. Therefore, the application of artificial intelligence equipment in the farmhouse has a great prospect.

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## 4.2 SWOT analysis

### ● S: Advantage analysis

#### 1. Background advantages

Under the background of the Rural Revitalization strategy implemented by the state, it has promoted the development of leisure agriculture in China. With the continuous progress of science and technology and the large-scale application of artificial intelligence in our production and life, the organic combination of artificial intelligence and leisure agriculture has become the requirements of the times.

#### 2. Integration of scientific and technological intelligence

In the continuous development of science and technology in China, all walks of life are actively integrating scientific and technological intelligence. Integrating science and technology into leisure agriculture and innovating leisure agriculture mode and experience mode have great advantages over other traditional leisure agriculture and are more attractive to people. Moreover, tourism based on artificial intelligence has many benefits. Travel is full of risks and frictions. Artificial intelligence can ensure an efficient and more sustainable way of travel [15].

#### 3. Large development space

Nowadays, the development trend of artificial intelligence is good. People have a great demand for new innovative leisure tourism, and the market development space is large. At present, the mode of leisure agriculture innovation in the market needs to be improved, so the rising prospect is good and the development space is large.

#### 4. Large market demand

With the gradual tilt of China's policy towards tourism, the increase of holidays, the increase of urban population and leisure time, people's demand for tourism products will inevitably increase. However, in terms of the current tourism situation in China, the types of tourism products are still dominated by single sightseeing, and there are still problems of low participation and weak sense of experience. Therefore, the innovative development of leisure agricultural tourism can bring freshness and new mode to tourists, break the traditional way of leisure tourism, give them new experience and meet the needs of the market.

#### 5. Government support

The Fifth Plenary Session of the 16th CPC Central Committee of the Communist Party of China proposed to build a new socialist countryside with "production development, affluent life, civilized rural style, clean village appearance and democratic management", and leisure agriculture has entered a stage of rapid growth.

### ● W: Disadvantage analysis

#### 1. Lack of integrated planning

Leisure agriculture belongs to both "leisure" industry and the category of "agriculture", so there are contradictions and conflicts at the management level, involving the functional positioning and integration of agricultural and rural departments and culture and tourism departments.

#### 2. Deficiencies in science and technology

The innovative development of leisure agriculture needs to integrate the mode of

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scientific and technological intelligence. However, the current AI technology is still in the exploratory stage and intermediate development stage, the degree of harmony integration between science and technology of the innovation model needs to be improved. Therefore, it is impossible to highlight the value and advantages of eco-agricultural tourism products. [15] Artificial intelligence applications need a lot of data to train algorithms. Although there are a lot of spatial data in the field of agriculture, most data can only be used once a year in the growing season [16] this leads to that only a few agricultural areas that implement large-scale standardization can better adapt to the model, so the technical refinement needs to be improved.

### 3. Lack of compound talents:

Leisure Agricultural Tourism under artificial intelligence belongs to a compound industry. To achieve the organic combination of the two, we need to have enough relevant theoretical knowledge and flexible application ability, and this kind of talents is relatively scarce at present.

### 4. Imperfect facilities:

At present, the innovative development of leisure agriculture model is mainly limited by agricultural regional factors. The imperfection of agricultural regional infrastructure is still a major restrictive factor for the development of the new model.

## ● O: Opportunity analysis

### 1. According to the requirements of urban and rural development

(1) With the development of urbanization, the number of urban population increases, traffic congestion, environment pollution, air quality deteriorates. At the same time, people living in cities are under great pressure from life and work, and need a kind of comfortable and quiet leisure way to relax their body and mind.

(2) In order to promote the construction and development of new rural areas, rural areas have abandoned the traditional agricultural way, more to build new rural areas for the purpose. We will combine agriculture with the secondary and tertiary industries to increase rural employment opportunities and raise farmers' incomes. Leisure agriculture is an emerging industry based on such a development trend.

### 2. In terms of urban and rural development conditions

When the steady improvement of urban economy, the improvement of urban per capita consumption level and the increase of income allow people's material needs to be satisfied, people begin to pursue spiritual and material satisfaction, and travel is the most common way to meet spiritual needs. In addition, the increase of holidays and the popularity of family cars provide more favorable conditions for short trips. While the construction of rural roads and the modernization of rural facilities, the countryside still retains its advantages such as beautiful natural scenery, good air quality, time-honored folk customs and traditional agricultural labor, which can meet the needs of urban population for leisure and entertainment and provide favorable conditions for leisure agricultural tourism.

### 3. Lack of market share and low

At present, the majority of leisure agricultural tourism is the traditional tourism model, which has little space for development. Moreover, consumers are tired of the

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traditional tourism model and pursue new tourism model. Therefore, at this time, seize the opportunity of innovative development of leisure agricultural tourism, integrate scientific and technological innovation, artificial intelligence, create highlights, attract customers, and in the current innovative mode of leisure agricultural tourism share is not high, this can be regarded as an opportunity.

- T: Threat analysis

Various forms of tourism products were met.

1. Traditional tourism is still the main market and has a wide audience.
2. New types of tourism are equally diverse and have good development potential.
3. The vulnerability of tourism itself also determines that it is vulnerable to various external factors during the development of the new model, such as geological disasters, epidemics, crimes and so on.

Today, with the rapid development of tourism, the types of tourism products are diverse. Although leisure agriculture has certain advantages, the innovative development of leisure agriculture tourism mode is not sufficient and immature, and there are certain disadvantages in the competition with other relatively perfect tourism modes.

## **5. Conclusions and Recommendations**

### **5.1 Conclusions**

- Incomplete infrastructure and less experience products

Farmhouses are generally transformed from rural houses. The architectural style of the houses is relatively backward, lacking in aesthetics, and the building materials are not of high quality. Due to the high mountains in the countryside, natural gas cannot be supplied, the kitchen can only use the most traditional firewood fuel, and the sewage system of the farmhouse is not perfect, so the sewage can only be discharged into the nearby river.

- Serious homogenization and lack of innovation in products

Traditional farmhouses only provide a large rural environment, and there are few farmhouse experience products, and only stay at the level of providing farmhouse dishes for tourists. Operators cannot set up tourism experience products due to cumbersome management, high cost, short agricultural product cycle, and less land for crops. On the other hand, modern people's life is fast-paced and people are impetuous. They choose farmhouses not to relax their body and mind and experience rural life. Farmhouses are mostly in line with the needs of consumers, but also go against the simple and natural rural customs, and tend to develop in the direction of commercialization. As a result, the farmhouse lacks the combination of culture and humanistic customs, and agricultural experience products do not have a place in the farmhouse market.

- Lack of professional talents and weak service awareness

The business model of farmhouses is generally family-run, and the operators are

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generally middle-aged people who work in agriculture or change careers, with low educational level and lack of professional and systematic management and management capabilities. The Luzhou farmhouse industry mainly lacks these three types of talents: First, management talents. Carry out systematic and orderly management and operation of farmhouses, and put forward innovative suggestions for the development of farmhouses. The second is folk-custom inheritance talents. Farmhouses are an indispensable part of rural tourism. Luzhou's wine culture is a unique local folk custom. It is Luzhou Farmhouse that integrates local customs and customs into all aspects of farmhouses and inherits them. where the advantage lies. The third is service-oriented talents. The service staff of Luzhou Farmhouse have a weak service awareness. The service staff only provide meals and dining environment, and the rest are done by tourists themselves. And service occupies a crucial position in the tourism industry, and high-quality service will greatly increase the return rate and tourism satisfaction of tourists.

## 5.2 Recommendations

- **Improve the infrastructure**  
Infrastructure is the basic construction of farmhouses, and perfect facilities and equipment can bring a better sense of experience to tourists. Improve the sewage and drainage system of the farmhouse, vigorously reduce the environmental pollution of the farmhouse, and protect the rural green environment on which the farmhouse depends. Improve the fire safety publicity of farmhouses and build public. To ensure that the farmhouse can have a safe environment in the operation process.
- **Increase the innovative products of farmhouse**  
Traditional farmhouses have lost their competitiveness in the increasingly rich tourist products, and the same farmhouse dishes are no longer attractive to tourists. Innovative agricultural tourism experience products will become the most attractive part of farmhouses. Farmhouse experience products are mainly agricultural labor experience activities, agricultural product picking activities, etc. It can allow tourists to participate in agricultural activities and experience the unique folk customs of the countryside.
- **Strengthen the training of farmhouse management personnel**  
Provide professional and systematic training units for farmhouse staff to strengthen the management level and professional quality of farmhouse managers. At the same time, vigorously promote the policy of returning college students to their hometowns, and introduce more professional talents to promote rural revitalization and development.

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