

# Analysis of the Achievements and Optimization Path of Digital Transformation in Forest Health and Wellness Industry

Sun Yi, Zhao Fanyi, Wu Zhuyu

Liaoning University of International Business and Economics, Dalian, 116052, China

**Abstract:** In the wave of rapid development of the digital economy, the full use of digital technology provides strong support and impetus for the transformation and efficiency of the forest recreation industry. In recent years, the forest recreation industry is showing a booming development trend, driven by the aging trend of the population and the "Healthy China" strategy. With the rapid development of digital economy, digital technology is gradually becoming an important driving force for the transformation of forest recreation. However, at the same time, the problems of inadequate digital management model, lack of innovation in digital business model, and low digital skills of talents, which limit its potential in the transformation of forest recreation industry, have been exposed. This paper firstly analyses the main achievements of the forest recreation industry, and then analyses the business model of the forest recreation industry under the background of the digital economy lagging behind the market demand, the lack of perfect management model, the lack of publicity, and the lack of digital and cross-border thinking of talents. In view of the problems, it is proposed to improve the lack of digital management mode of forest recreation, deepen the cultivation of professional talents, carry out effective marketing and publicity, carry out industrial integration, create a comprehensive forest recreation service industry chain, achieve sustainable development, and implement the theory of "two mountains", which can further promote the digital transformation of the forest recreation industry and provide powerful support for the realisation of the high-quality development of the industry.

**Keywords:** Forest Recreation, Digital Transformation, industrial development

## 1. Introduction

The concept of forest recreation first originated in Germany in the 1840s, and in the early days, it was mainly practiced in the form of "forest bathing", and then gradually spread in other developed countries in Europe and the United States<sup>[1]</sup>. As an emerging health industry, forest recreation industry has not only changed the traditional industrial model, but also brought more development opportunities for the forest recreation industry, which plays an increasingly important role in modern society, and digital transformation has become an important driving force to promote the transformation and upgrading of the industry.

At present, the health consciousness of our people is awakening, and forest recreation is gradually developing into a new demand<sup>[2]</sup>. The digital transformation of the forest health industry has successfully achieved a deep integration with a new generation of information technology, such as big data, cloud computing, Internet of Things, etc., and the application of these technologies has improved the level of intelligence and precision of services. The recreation industry itself involves a lot of healing science and technology products as well as the innovation of monitoring equipment, which requires the support of science and technology, and is firmly associated with digital technology, not just a simple management system<sup>[3]</sup>. In view of this, this paper aims to promote the digital transformation of the forest recreation industry as a whole, through the recognition of the main problems in the development, expect to get the corresponding strategy to deal with, and actively practice the strategy of Healthy China and the concept of "two mountains".

## **2. The effect of digital transformation of forest recreation industry is remarkable**

### ***2.1. Market Expansion and Economic Benefit Enhancement***

With the help of the Internet platform, the publicity and promotion of forest recreation services are more convenient and efficient, and can quickly reach a wider range of potential customer groups. Through precise marketing and personalized recommendations, forest recreation services can more accurately meet consumers' needs and increase market penetration. On the other hand, digital transformation promotes cross-border integration and innovative development of the forest recreation industry. Through cooperation and linkage with other industries, such as tourism and education, the forest recreation industry is able to develop more diversified and attractive products and services, further expanding the market space. Forest hiking, forest yoga, and other special projects can be developed by combining the characteristics of forest resources to provide consumers with a more colourful recreation experience. Research has found that people can effectively improve the immune function of the human body and enhance the anti-cancer function of the human body through forest hiking exercise; it also has a strong emotional regulation ability, which makes people happy and pleasant<sup>[4]</sup>.

Through the introduction of intelligent management systems and online service platforms, the optimisation and automation of service processes are achieved, reducing human costs and material consumption and improving service efficiency. Digital transformation also promotes product innovation and market diversification, through the introduction of new technologies, new equipment and new materials, the forest recreation industry is able to develop more innovative and competitive products and services to meet the diversified needs of the market, which combines with smart wearable devices and big data technology to provide consumers with personalised health monitoring and rehabilitation programmes; combining with virtual reality technology, it provides consumers with immersive forest recreation experience. Digital transformation improves service efficiency and quality and reduces operating costs. These innovative products and services will not only increase consumer satisfaction and loyalty, but also bring higher economic returns to the forest recreation industry.

### ***2.2. New impetus for upgrading the value of ecological products***

Forest recreation industry is a comprehensive industry that creates good ecological benefits while ensuring the comprehensive use of forest ecological resources<sup>[5]</sup>. With the in-depth promotion of the construction of ecological civilisation, ecological products have been widely valued and recognised in our country, and their status in people's daily life and industrial development has become increasingly significant. In recent years, China has actively explored digital technology to broaden the path of realising the value of ecological products<sup>[6]</sup>. There are three main aspects of ecological product value, namely ecological value, social value and economic value<sup>[7]</sup>. About how to realise these values, so that the green mountains can be transformed into golden mountains, is the key content of the practice.

Digital transformation enables the forest recreation industry to monitor and manage forest resources more accurately to ensure the integrity and stability of the ecosystem. Nowadays, digital technology has become an emerging factor of production, which not only comprehensively penetrates into various fields, but also brings unprecedented changes to our lifestyle and economic structure. Notably, over the past two decades, digital technology has changed the global industrial landscape at an astonishing speed<sup>[8]</sup>. From manufacturing to services, from agriculture to finance, industries have experienced profound changes led by digital technologies, such as the emergence of smart manufacturing, online retailing, drones, and other emerging forms<sup>[9]</sup>. With the spread of digital technologies, emerging economic and business models are emerging, and they are driving the resource economy to achieve significant transformation and upgrading in the economy and society. These digital technologies not only provide enterprises with the possibility of developing more goods and services, but also promote the exchange and sharing of information between enterprises, breaking the geographical limitations, while increasing the market supply rate.

### ***2.3. Shaping of a new industrial value system***

Driven by digital transformation, the forest recreation industry has achieved leapfrog development from traditional to modern. First of all, digital transformation optimises the service process and improves the service quality, enabling consumers to enjoy more personalised and precise recreation services. This innovation in service mode not only improves consumer satisfaction, but also establishes

a good reputation for the forest recreation industry and further enhances its market competitiveness. Secondly, digital transformation has expanded the market scope of the forest recreation industry. Through the Internet platform, forest recreation services can cover a wider area and attract more potential consumers. Meanwhile, the use of digital marketing tools, such as social media promotion and big data analysis, digital technology can also help promote the value of forest recreation and improve the brand awareness and market influence of the forest recreation industry. More importantly, digital transformation promotes the innovative development of the forest recreation industry. Through the in-depth integration with culture, tourism, medical care and other industries, the forest recreation industry has formed a diversified industrial structure, providing consumers with richer and more diverse recreational experiences. Studies in Japan and China have shown that activities related to "forest bathing" bring many positive health benefits to the human body's physiological and psychological systems (Bowler, 2010)<sup>[10]</sup>.

Digital transformation has led the forest recreation industry to focus on consumer needs and experiences, with consumer-centred service concepts throughout. At the same time, digital transformation also promotes the synergistic development of the forest recreation industry with other industries, forming a benign and interactive development pattern. This new industrial value system not only enhances the social value of the forest recreation industry, but also lays a solid foundation for its sustainable development.

### **3. Challenges to the digital transformation of the forest recreation industry**

#### ***3.1. Comprehensive improvement of digital management mode needs to be perfected***

The scope of the improvement of the digital management mode is yet to be broadened, and the digital transformation requires the realisation of the comprehensive digitalisation and intelligence of the management mode. However, many enterprises tend to focus only on the digital improvement of a certain link or a certain aspect, ignoring the coordination and integrity of the entire management system. The second is that the depth of the digital management mode improvement needs to be strengthened, digital transformation is not only the upgrade and replacement of technology, but also a fundamental change in management concepts and methods.

#### ***3.2. Digital business model innovation lags behind market demand***

The existing digital business model of forest recreation has obvious deficiencies in innovation, and it is difficult to meet the rapid changes in the market and the diversified needs of consumers. Studying how digital enterprises in each industrial cluster carry out business model innovation is necessary to promote industrial upgrading and drive regional economic development<sup>[11]</sup>. In the process of digital transformation, many forest recreation enterprises still follow the traditional business model and fail to make full use of the opportunities brought by digital technology to innovate and upgrade their business models. This leads to a disconnect between the products and services of the enterprise and the market demand, showing the problem of a single service mode, most of the service mode stays in the traditional leisure and tourism level, failing to make timely adjustments and innovations according to market changes and consumer demand.

#### ***3.3. Talents' digital skills and cross-border thinking need to be improved***

The forest recreation industry needs talents with digital skills and cross-border thinking in the process of digital transformation, however, such talents are scarce in the market. Existing practitioners' acceptance and ability of new technologies vary, and how to cultivate and improve their digital literacy is also a major challenge. Currently, the forest recreation industry is facing a shortage of talent in the process of digital transformation. On the one hand, most of the existing talents in the industry lack the necessary digitalisation skills and find it difficult to adapt to the new development needs; on the other hand, due to the difficulty in cultivating cross-border thinking, it is difficult to attract suitable talents from other fields. In order to solve the problem of inter-regional talent imbalance, we must formulate reasonable talent incentive policies and improve the level of infrastructure and public services through the synergistic development of the recreation industry and the regional economy in order to provide more employment opportunities, which will in turn enhance the attractiveness of the less developed regions to talents, and at the same time, encourage high-quality talents to devote themselves to the operation and management of the recreation industry in an all-round way.

### ***3.4. Support policies for digital transformation fail to comprehensively cover and effectively promote the transformation process***

As the forest recreation industry covers a number of service industries such as forest bathing, leisure, sports, education, and health care, involving many related industries, there are differences in the level of development, needs and problems of the forest recreation industry in different regions, and the existing support policies may only cover some of these aspects, resulting in policies that are ineffective in certain regions. Then there is the insufficiency of publicity and the relatively single means of promotion. Despite the significant advantages of the forest recreation industry in the field of eco-health, the existing publicity methods mainly rely on the promotion of traditional media and governmental departments, and lack of the use of new media and social platforms, which limits the breadth and depth of publicity and leads to a low public awareness of this industry model. This makes consumers tend to favour traditional tourism or pension methods over forest recreation when choosing recreation products. Next is the lack of product innovation, many forest recreation products lack innovative service models and experiences, which fails to meet consumer demand for personalised services and reduces the attractiveness and market competitiveness of the products. Lastly, there is a low degree of industrial integration. The forest recreation industry involves a number of fields such as forestry, tourism and health, which require cross-border integration, while existing policies may fail to adequately promote cooperation and exchanges between these fields, resulting in a low degree of industrial integration.

## **4. Optimising the new path of digital transformation of the forest recreation industry**

### ***4.1. Construct a digital management system for the forest recreation industry by means of intelligence***

Through policy guidance and financial support, we will promote the wide application and promotion of intelligent applications and services in the forest recreation industry, and improve public awareness and acceptance of intelligent management.

### ***4.2. Accelerate the innovation of business model to match the market demand***

It is necessary to promote the innovation of service models to meet personalised demands. Then it is necessary to conduct in-depth market research to accurately grasp the dynamic changes in market demand, and regularly collect and analyse consumer data, including consumption habits, preferences, needs, etc., in order to understand the dynamics of the market and the real needs of consumers.

Professional market research institutions or teams can be introduced to ensure the accuracy and timeliness of the research data. Finally, it is to strengthen the innovation of technology and improve the level of service intelligence. By actively introducing new technologies such as big data, Internet of Things, artificial intelligence, etc., we can optimise our products and services through technical means and enhance consumer experience; we can also establish a technical innovation team to strengthen cooperation with some research institutions and enhance our technical innovation capability.

### ***4.3. Strengthen the training of professionals***

Forest recreation industry is a new industry, the lack of communication between the relevant departments and departments, no targeted analysis of the problem, resulting in a lack of relevant support policies, especially the lack of "funds, land" and other aspects of the provisions of the forest recreation industry policy support system is not perfect, the development of relatively slow<sup>[12]</sup>. Although this industry has good development prospects, few skilled personnel are willing to take the risk of joining the new industry, and they prefer the traditional industry that has been developed for a long time, which leads to a shortage of human resources and logistical services, which urgently needs a professional talent team. Cultivating multi-level practitioners is an important foundation for promoting forest recreation<sup>[13]</sup>. In order to strengthen the digital talent team, the first step is to start from improving individual skill levels, enhance the understanding of low-skilled workers of digital technology by taking relevant courses or strengthening practice<sup>[14]</sup>, and provide flexible learning methods using a combination of online and offline methods to adapt to the new intelligent environment. The second is to set up practice bases or practical training bases to provide workers with real working environments, so that they can continue to learn and improve in practice. Finally, it is to strengthen the introduction of talents, and can establish cooperative relationships with universities to attract

outstanding graduates through campus recruitment or project cooperation.

#### ***4.4. Improve the support policy for digital transformation of the forest recreation industry***

##### ***4.4.1. Increase policy support***

The development of forest recreation industry is an effective way to make scientific use of forest resources and practice the scientific development concept of "green mountains are golden mountains", an important measure to implement the strategy of rural revitalisation and the strategy of healthy China<sup>[15]</sup>. The forest recreation industry, which involves multi-sectoral cooperation in health, sports, culture, education, pension, finance, etc., is actively organised and coordinated by the government and relevant functional departments to provide policy and institutional support for the development of forest recreation<sup>[16]</sup>. Local governments can provide loan services for forest recreation bases to solve the financial difficulties faced by the digital transformation of forest recreation, help forest recreation to expand financing channels for digital transformation, and promote the digital transformation of forest recreation in the direction of formalisation and standardisation. At the same time, we should also do a good job of coordinating the forest recreation industry, so as to form a policy support system centred on the forest recreation industry and provide good policy support for the development of digital transformation of forest recreation.

##### ***4.4.2. Increase publicity and promote product innovation***

At present, the public, including some business owners of the forest recreation industry cognition only stays in the "eat, drink, play, play," the basic level of tourism, do not understand the culture of the forest recreation industry as well as the unique service function, so many people can not separate the forest recreation industry from the tourism industry<sup>[17]</sup>. Some people do not even know the existence of the industry of forest recreation, resulting in a situation of low investment in related industries and a slow integration process between industries<sup>[18]</sup>. Publicity can be carried out through multiple channels, such as short videos, real-time live broadcasts, television, etc., to attract more people to pay attention to and participate in forest recreation and understand the importance of a healthy life. Seminars, forums, exhibitions and other activities related to the forest recreation industry can also be organised, inviting industry experts, enterprise representatives and other participants to improve the influence of the industry. According to market demand and consumer preferences, we can focus on product innovation, develop forest recreation industries with local characteristics, and develop more forest recreation products and services that meet the lifestyles of modern people. In addition, mobile TVs can be used as a means of communication, and mobile TVs can be installed at the entrances of buses and lifts to promote the forest recreation industry and diversify and enhance the public awareness of the forest recreation industry. These measures can further improve the support policies for the digital transformation of the forest recreation industry, thus promoting the healthy development of the forest recreation industry.

##### ***4.4.3. Promote the integration of industries***

Forest resources have asset versatility, and there is a virtuous circle effect of mutual promotion between asset versatility and industrial integration, and the integration and development between industries will strengthen the versatility of assets<sup>[19-20]</sup>. Strengthening the integration and development of the forest recreation industry with agriculture, tourism, health management and other industries to form an industrial linkage effect is a key part of promoting the sustainable development of this industry. The forest recreation industry has the attribute of integrating forest tourism, cultural research, physical and mental health care and other aspects in one, which makes the forest recreation in the production, learning and research have the value of deep cultivation<sup>[21]</sup>. It can also strengthen the integration with the tourism industry, promote the in-depth integration of forest recuperation and the tourism industry, and create characteristic forest recuperation tourism products and services, which can make use of the publicity channels of the tourism industry to enhance the visibility and influence of the forest recuperation industry; At the same time, the medical industry can also introduce its advanced medical technology, equipment and talent resources into the forest recreation industry, innovate the service mode and provide more comprehensive and personalised services; Finally, through the introduction of health management concepts and technologies, it can provide more scientific and professional services for forest recreation. This is not only conducive to the expansion of the industrial chain, but also promotes cross-border cooperation to achieve resource sharing and mutual benefit, providing strong support for the sustainable development of the forest recreation industry. Such integration will not only help enrich the content of recreation services, but also improve the efficiency and quality of services,

further meeting the diversified market demands for healthy living. As shown in Figure 1, it is used to demonstrate the integration of the forest recreation industry with agricultural, tourism, medical and agricultural health management industries in the process of digital transformation.



Figure 1: Diagram of promoting industrial integration

## 5. Conclusions

The forest recreation industry is a new industry that uses forest resources and health to integrate and develop. Driven by national macro-policy guidelines and the growing demand for health and wellness among the general public, China's forest recreation industry is actively undergoing a digital transformation, continuously tapping into and releasing the deep-seated potential of the industry's value by means of advanced information technology and data-driven. This transformation not only successfully meets the modern pursuit of physical and mental health, but also provides new value for ecological products, and has become an important engine for promoting the high-quality development of the tourism economy. However, at present, the digital transformation of the forest recreation industry suffers from a lack of motivation, low digital skills of talents, etc. Therefore, on the road of digital transformation, it is necessary to actively implement countermeasures and programmes to promote industrial integration, and constantly improve the level of technology application. In the future, with the increase in policy support, the strengthening of intelligent management systems, and the continuous improvement of the industrial chain, the forest recreation industry will usher in a better development prospect.

## Acknowledgements

**Fund program:** 2022 Liaoning Provincial Social Science Planning Fund Project: Research on the Dynamic Mechanism, Main Challenges and Policy Options of Digitization of Liaoning Forest Recreation Industry (L22BJL004).

## References

- [1] WANG Wenxiu, ZHANG Wei, BAI Manmo, et al. Analysis of development dilemma and optimisation strategy of forest recreation industry in Hainan[J]. *Western Tourism*, 2023, (21):8-10.
- [2] XIAO Huijuan, XIAO Hongyan. Study on the Development Path of Forest Recreation under the Background of "Healthy China"--Taking Sanming City as an Example[J]. *Journal of Xichang College*

(*Social Science Edition*), 2021, 33(03):69-75.

[3] HE Qiuqie, LI Yingpei, CHEN Guoqing. *Deep Integration of Recreation Industry and Regional Economy: Dilemma, Power Mechanism and Realistic Path*[J]. *Journal of Panzhihua College*, 2024, 41(01): 1-9.

[4] Sun Baopu. "Forest recreation" is a new industry and mode of China's large health industry[J]. *Business culture*, 2015, (22):82-83.

[5] LIU Zhu, ZHENG Yongdeng. *Countermeasures analysis of integrated development of forest recreation industry under the perspective of ecological value transformation*[J].*Shanxi Agricultural Economics*, 2023, (09):126-128.

[6] Hu Yi, Li Yuansheng. *Digitalisation broadens the path to realising the value of ecological products* [J]. *Environmental Protection*, 2023, 51(17):17-20.

[7] Bian Ce, Ci Xuelun. *Exploration of the ecological value and realisation of forest recreation*[J]. *Forestry Science and Technology Newsletter*, 2023, (10):20-24.

[8] Xie Weihong, Zheng Diwen, Li Zhongshun, et al. *Digital technology-driven industrial change: research review and outlook*[J]. *Research Management*, 2024, 45(05):11-21.

[9] CULOT G, NASSIMBENI G, ORZES G, et al. *Behind the definition of industry4.0: Analysis and open questions*[J].*International Journal of Production Economics*, 2020, 226:1-15.

[10] Zhu Y , Huang W T , Cheng L ,et al. *Rival and Ally: An Analysis of the Feminist Movements Multiple Perspectives Influences on the Evolution of the Porn Industry*[J].*Lecture Notes in Education Psychology and Public Media*, 2023.DOI:10.54254/2753-7048/5/20220703.

[11] Luo Rui. *Research on digital entrepreneurship business models under different industrial cluster models* [J]. *Today's wealth*, 2024, (19):17-19.

[12] Li Kexuan. *Analysing the culture of Zhou ritual in "Poetry Classic - Qin Feng"*[J]. *Art Science and Technology*, 2020, (2)91-92.

[13] Chen Lingjun, Xu Shiwei. *Research on problems and countermeasures of forest recreation industry development in Guizhou Province under the background of national recreation policy*[J]. *Guizhou Forestry Science and Technology*, 2023, 51(02):90-94.

[14] Dai Y , Cao T .*Research on Optimization Strategies for the Practical Teaching of Ideological and Political Theory Courses in Colleges and Universities Based on the Two-Factor Theory of Motivation*[J].*Open Journal of Social Sciences*, 2023, 11(12):13.DOI:10.4236/jss.2023.1112013.

[15] Chen Xinyi. *Development Status and Prospect of Forest Recreation Industry in China*[J]. *Journal of Shanxi University of Finance and Economics*, 2021, 43(S1): 50-52.

[16] HAN Lihong, TIAN Guoshuang, GAO Huan. *Impact of industrial integration on the development of forest recreation industry*[J]. *Journal of Northeast Forestry University*, 2021, 49(08):100-105.

[17] XI Yue. *Research on the integration development strategy of ecological culture embedded in forest recreation industry* [J]. *Economic Research Guide*, 2021, (21):26-28.

[18] Wang Yongxiong. *Current situation of forest recreation industry in Meilie District and countermeasure suggestions*[J]. *Status quo and countermeasure suggestions of forest recreation industry in Meilie District*[J]. *Anhui Agricultural Bulletin*, 2020, (4): 62-64.

[19] Zheng Minggao. *Research on Industrial Integration Development* [D]. *Beijing Jiaotong University*, 2010.

[20] Li Xiangling, Chen Xi, and Hongxiao. *Exploring the development status and countermeasures of forest recreation industry in Xiangxi Tujia and Miao Autonomous Prefecture* [J]. *Agriculture and Technology*, 2023, 43(24):158-161.

[21] Sheng Chunguang, Liu Zongye, Liu Xiaoguang, et al. *Research on the path of cultivating forest recreation talents in agricultural and forestry colleges and universities*[J]. *China Forestry Economy*, 2023, (06):39-45.