The Study on the Innovation Ecosystem Construction of Integration of Digital Culture and Tourism Industry

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Abstract. The integrated development of digital cultural tourism is a crucial strategy to promote industry growth under the digital economy. Under the vision of innovative paradigm 3.0, innovation not only relies on inter-industry integration, but also requires the integration of industries and related heterogeneous entities to build an industry-integrated innovation ecosystem to achieve collaborative innovation. This article firstly analyzes the constructive basis of the integration of digital cultural tourism and the innovative ecosystem, which is the integration of digital cultural tourism and the innovative mechanism, including risk sharing mechanism, large-scale economy mechanism, cross-innovation mechanism, agglomeration spillover mechanism, competitive effect mechanism, profit sharing mechanism and user feedback mechanism. Then we can construct the integration of digital cultural tourism and the innovative ecosystem under this basis to analyze its factor and dynamic mechanisms and evolution process. The conclusion of this research will provide theoretical references and suggestions for the innovation of digital cultural tourism.

1. Introduction

In the 40 years of China’s reform and opening up, the economy has continued to grow rapidly, and the demographic dividend formed by a large population has played an important role in economic development. However, with the technological blockade in developed countries and rising labor costs, this demographic dividend is gradually disappearing. We should take advantage of the consumption dividend of the large population in our country to promote continued economic growth in addition to encouraging innovation and realizing industrial transformation and upgrading. The large number of mobile Internet users are our advantage. With the continuous deepening of digital industrialization and industrial digitization, the “digital economy” has become a new economic growth point after the “agricultural economy” and the “industrial economy”. In 2018, the aggregate of our digital economy totaled to 31.3 trillion yuan, second only to the United States. The rapid development of the digital economy provides new momentum for economic development. In November of the same year, General Secretary Xi Jinping reiterated the need to promote the deep integration of the digital economy and real economy through innovation at the G20 Argentina summit. As the cultural industry and tourism have the characteristics of natural integration, the cultural industry and tourism is moving towards integrated development. In the process of integrated development, we will continue to inpour culture of with different forms and nature into
the tourism industry to accelerate the innovation of new tourism products. While promoting the integration of tourism and culture, we will also meet diversified new consumer demands and promote the transformation and upgrading of the tourism industry. [1]

As the continuous development of digital technology, the boundaries of cultural and tourism have gradually disappeared, and the integration of culture and travel has gradually formed to digital cultural tourism with the development of the digital economy. The main development model of the integration of digital cultural tourism is to deepen the integration of cultural industry and tourism through digital technology, improving travel quality through culture and expanding the spread of culture and consumption with the help of tourism. [2] Based on the support of 5G, integrating big data, artificial intelligence, AR and VR technologies into the cultural and tourism industry can enhance the experience of tourists in all aspects. [3] However, to promote the integration of cultural industry and tourism through digital technology is not a simple and mechanical superimposition and listing of culture and tourism, but to deeply dig into the internal rules of the development of digital industry, cultural industry, and tourism to achieve effective integration of the three to continuously promote industrial development. But the problem of what the mechanism is, how to make greater innovation efficiency of the integration of digital cultural tourism tourism and so on need to be solved while advocating the innovation and integration of cultural tourism under digital economy. Therefore, in-depth exploration of its innovation mechanism from the new perspective of the integration of cultural and tourism under digital economy will provide ideas for promoting the integrated development of the digital cultural industry and tourism.

Table 1. History Table of China's Digital Cultural Tourism Integration Development Strategy.

<table>
<thead>
<tr>
<th>Year</th>
<th>Events related to the integration of digital culture and Tourism</th>
<th>Effect and significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Issued &quot;Guiding Opinions on Promoting the Integrated Development of Culture and Tourism&quot;</td>
<td>Clearly proposed the integration of cultural industry and tourism industry</td>
</tr>
<tr>
<td>2011</td>
<td>Clearly put forward &quot;promote the integrated development of cultural industries and tourism industries&quot;</td>
<td>Started the new year of the integration of culture and tourism industry</td>
</tr>
<tr>
<td>2017</td>
<td>Issued &quot;Guiding Opinions on Deepening &quot;Internet + Advanced Manufacturing&quot; and Developing Industrial Internet&quot;</td>
<td>It was of great significance to promote the deep integration of the manufacturing industry and the Internet, and also reflects the important significance of the integration of the digital economy and the real economy</td>
</tr>
<tr>
<td>2017</td>
<td>General Secretary Xi Jinping pointed out that it is necessary to promote the integrated development of the real economy and the digital economy</td>
<td>Showed that the integration of big data and the real economy will become the focus</td>
</tr>
<tr>
<td>2018</td>
<td>Provincial (city) Department of Culture and Tourism (Committee) is fully listed</td>
<td>Marked the arrival of the era of cultural and tourism integration and the ful complement pf the government-level cultural and tourism integration</td>
</tr>
<tr>
<td>2019</td>
<td>General Secretary Xi Jinping pointed out that he once again proposed to promote the integrated development of the digital economy and the real economy</td>
<td>Pointed out the direction to further promote the innovation and development of the digital economy and better integrate with the real economy</td>
</tr>
</tbody>
</table>

Source of Information: Compiled by the Author
2. Literature Retrieval and Review

Don Tapscott first mentioned “digital economy” in his book called *The Digital Economy Rethinking Promise and Peril in the Age of Networked Intelligence*, where this conception was first put forward formally. The digital economy has the characteristics of integration. It effectively promotes the integration of production and sales and industrial upgrading through the integration of digital technology and industry. The externality of digital economy makes more economic entities acquire enterprises’ integration and enjoy the economic benefits together. The digital technology plays an significant role in the development of cultural industry (Gu Jiang, etc. 2010) and tourism (Li Heng, etc. 2018). It is an inevitable trend of industrial development for the integrated development of cultural industry and tourism. Tourism has the characteristics of openness and the natural essence of integrating with other industries. As a kind of travel resource, culture can provide new momentum for the development of tourism, while tourism can provide cultural experiences and products back. They promote the development of each other. Academia has also shown diverse results in the research of the integration of culture and tourism, concentrating on the research of dynamic mechanism (Zhou Chunbo, 2018), fusion measure (Hou Bin, etc. 2015), appraisal of competitiveness (Cheng Qian, etc. 2015), the construction of public service (Jing Wugang, etc. 2019). In the digital economy, the Internet, the Internet of Things, big data, cloud computing, artificial intelligence, 5G and other information and digital technologies have become important forces to promote the integration of culture and tourism, and also core forces to drive the innovation in cultural industry and tourism, products, business, management and commercial model. Digital cultural tourism was pointed out to be new engines for high-quality development in cultural and tourism industry, while the integrated innovation of digital cultural tourism being key direction in research at the Taiyuan Digital Cultural Tourism Integration Innovation Development Conference in Shanxi in October, 2019.

Industrial integration innovation is essentially a way of open innovation. Inter-industry integration refers to the gradual blurring of boundaries between different industries, and they begin to penetrate to each other and gradually begin to merge with each other. The development of inter-industry integration is conducive to product innovation and industrial upgrading in various industries. The industrial integration can effectively promote collaborative innovation within industries. The industrial integration has been researched by academia since Legewie put forward the conception of industrial integration in 2000. The research on industrial integration concentrates on collaborative innovation in the process of industrial integration (Luo Dong, etc. 2015) and the research on innovative routine (Guan Xu, etc. 2018), and empirical research concentrates on the innovative benefits after integration (Li Xiaozhong, 2017) (Wang Xifang, 2018). There are few literatures on the analysis of integration and innovation mechanism, which need to be explored. The best open innovation paradigm of industry is innovative ecosystem and the integration of industry and other heterogeneous subjects to achieve the purpose of collaborative innovation. (Ander, 2006) For the first time, the ecological theory and innovation were combined, and the concept of innovation ecosystem was clearly put forward. Since then, the theory has become a hot spot in research in academia. At present, the innovation ecosystem has formed a relatively mature theory, mostly focusing on the concept, characteristics, system construction, operation mechanism, operation risk and risk management. Research on the construction of existing innovation ecosystem mainly concentrates on independent research at macro (nation), meso (industries or regions) and micro (enterprises) level. There are few researches on the construction of innovation ecosystem built to the integration of related industries. In the existing
literature on digital culture and tourism integration innovation, there are few literatures of innovation theory to analyze the digital economy and cultural tourism industry, and they all study singly on the research of digital economy and cultural tourism industry. For example, Yang Chunyu, etc (2016)[23] has constructed the system of cultural tourism innovation, and Meng Fangling, etc (2020) [24] has digital economic ecosystem. Since then, how to construct the integration of digital cultural tourism industry and innovative ecosystem creates a huge space to think for our study.

According to this, the current research on digital tourism innovation still has the following shortcomings: (1) There are some research on the integration of digital economy and related industries, but which are superficial; (2) As the research on the integration of culture and tourism being thorough, in digital economy the research on the innovation mechanism of the integration of culture and tourism is not. (3) There are rich theoretical research results on innovative ecosystem, but few researches on industrial integrated ecosystem at meso-level. Based on this, the following expansions are made on the basis of the previous research: first, analyze the integration and innovation mechanism of the digital cultural tourism industry, and then introduce heterogeneous subjects such as governments, universities, scientific research institutions and intermediary institutions to analyze the construction on the integration of digital cultural tourism industry and innovative ecosystem. This research can not only describe the new driving force of industrial integration and innovation systematically, but also provide a theoretical basis for further improving the related policies of the deep integration of our digital economy and the real economy.


The basis of the construction of the digital cultural tourism industry and the innovative ecosystem requires stable integrated mechanism between industries, which can achieve continuous collaborative innovation. The cultural industry and the tourism have natural integration attributes and have a basis for mutual promotion. The integration of cultural and tourism industry in digital economy can effectively promote the development of the cultural tourism industry. The influence of the integration of cultural and tourism industry in digital economy, provides not only specific objective carrier, but also momentum for the development of cultural tourism industry and digital technology. Combining the existing literature and the characteristics of the digital cultural tourism industry, the innovation mechanism of the digital cultural tourism industry integration is summarized as a cross-innovation mechanism, agglomeration spillover mechanism, risk sharing mechanism, large-scale economy mechanism, benefit sharing system, user feedback mechanism and competitive effect mechanism. 1. Risk sharing mechanism. The integration process of digital culture and tourism embeds digital technology in the cultural industry and tourism industry. Enterprises in the digital cultural tourism industry can make full use of each other's R&D resources through joint ventures, etc., which can reduce R&D costs among cooperating companies, and the saved costs can be used for research and development of other projects. The research and development expenses are shared through cooperative research and development, and the accumulation of knowledge in the industry can be fully utilized to reduce the research and development risks between cooperative enterprises. At the same time, the integration of digital technology has continuously flattened, networked and decentralized the development of cultural tourism enterprises, reducing the cost of enterprise innovation[25].2. Large-scale economy mechanism. The integration of digital culture and tourism will jointly face a larger market, and the expansion of market scale will help to form
economies of scale. Another manifestation of the scale economy effect in enterprise innovation is the specialized division of labor. The technologies or links after the specialized R&D division of labor by enterprises in different industries can be assembled or aggregated at the end to give full play to the comparative advantages of different enterprises. The economies of scale in the sales market reduce the input cost of a company's unit products, and the economies of scale at the level of specialized division of labor reduce the unit cost of R&D in technical links, thereby increasing corporate profits. The R&D investment of enterprises increases with the increase of corporate profits, and enterprises can improve their independent R&D capabilities by introducing advanced technology and equipment, hiring technical experts, etc. 3. Cross-innovation mechanism. Different industries merge to form new knowledge through knowledge expansion, knowledge connection, and knowledge grafting. Apply knowledge from one field to another through knowledge expansion, expand the application environment of knowledge, and solve certain problems; through knowledge connection, connect seemingly unrelated knowledge in different fields to meet new comprehensive needs. Knowledge grafting is the grafting of knowledge from one field to another, thereby changing the attributes and meaning of the original knowledge and forming a new business model. [26] Digital cultural tourism is the intersection of knowledge in different fields to form new knowledge, which can not only meet the needs of more consumers, but also meet the diverse needs of individual consumers. 4. Agglomeration spillover mechanism. The agglomeration of digital cultural and tourism industries in the region can enable enterprises in the digital cultural and tourism industries to share elements of R&D activities and knowledge results in the region. The formation of strategic alliances between different enterprises in the industry, through the increase in the frequency of cooperative research and development or the flow of management personnel and technical personnel between enterprises, new knowledge spillovers are formed. Visits and informal exchanges of core technical personnel between industries that have not formed a strategic alliance will enhance the knowledge spillover between industries. Due to the agglomeration of industries, after any industry has formed a new technological breakthrough, it will quickly form an innovative synergy in the region to promote innovation in other industries. 5. Competitive effect mechanism. In the process of digital cultural and tourism integration, the barriers between industries are gradually reduced, and the technological boundaries, business boundaries, and market boundaries between the digital industry, cultural industry, and tourism industry have begun to blur and penetrate each other. The internal non-competitive relationship of the digital cultural tourism industry has transformed into a competitive relationship, and the degree of market competition has increased. [27] Fierce competition urges enterprises in the industry to increase R&D investment, rationally allocate internal production factors, optimize cooperation between enterprises, and develop new products and services. [28] As a result, the degree of competition increases, and the innovation capabilities of enterprises are enhanced, thereby enhancing the competitiveness of the digital cultural tourism industry. 6. Profit sharing mechanism. The profit sharing mechanism is an important indirect promotion process to enhance the integration and innovation of digital cultural tourism. Under the new normal of the economy, enterprises are facing fiercer competition, and consumer demand in the digital economy has become diversified and individualized. Through the integration of digital culture and tourism, on the one hand, the cost of enterprises can be reduced through cooperative research and development; on the other hand, innovative products of digital culture and tourism integration can better meet the diverse and personalized needs of tourists, promote market expansion, and increase common benefits. Both functions promote the increase of corporate profits, and the increase in profits gives companies the motivation for innovation, which will promote enterprises in the industry to increase R&D investment and promote industrial innovation. 7. User
feedback mechanism. In digital economy, mobile internet terminals including mobile phones bring convenient for consumers, they can check information, complete consumption and payment anytime and anywhere, and even make comments at will. According to the Asia-Pacific region data in the Google China report, the frequency of tourists using mobile phones to search during travel is 1.9 times that of daily use and 2.7 times that of offline resources. Tourists will generate massive amounts of data in the process of using mobile terminals. These data will be transmitted to the mobile Internet enterprise server through the mobile terminal. Enterprises use big data technology to quickly mine the required information. Through data mining, analyze the potential needs of consumers and their satisfaction with existing products and services, as well as their feedback. These potential needs and suggestions can guide the innovation direction of the company and encourage the company to continuously improve existing products and services, or Launch new products and services.

The process of realizing the internal mechanism of industrial integration innovation is the process of integration, which realizes risk sharing and economies of scale; the collision of different knowledge forms new knowledge and realizes cross-innovation. The aggregation of various resources between industries is more conducive to the realization of innovation output. Agglomeration and overflow; after industry integration, internal members increase, competition will inevitably intensify, and the industry will become more innovative after integration; Profit sharing and user feedback mainly use the feedback after innovation to achieve continuous innovation and strive to achieve breakthrough innovation. User feedback is the continuous improvement of existing innovations to achieve continuous innovation. Through the benefits of innovation, profit sharing strengthens R&D to acquire new technology, which leads to its breakthrough innovation. The above-mentioned industrial integration and innovation mechanism effects have jointly realized the stable innovation of industrial integration. Therefore, the stability of inter-industry integration and innovation provides a guarantee for the construction of an innovation ecosystem, and is the basis for in-depth cooperation between the digital cultural tourism industry and heterogeneous entities outside the industry to improve the efficiency of industry integration and innovation.

Figure 1. Digital cultural tourism industry integration and innovation mechanism.

The integration of the tourism industry in the digital economy can promote industrial innovation, and the innovation model has changed from initial single-enterprise innovation (innovative paradigm 1.0) and supply chain innovation (innovative paradigm 2.0) to the current innovative ecosystem innovation (innovative paradigm 3.0), and industrial innovation has gradually developed from closed to open innovation. System theory innovation is difficult to achieve by relying closely on inter-industry integration. It requires in-depth cooperation with heterogeneous entities outside the industry to improve innovation efficiency. Under the guidance of government policies, the integrated digital cultural and tourism industry has in-depth cooperation with universities, research institutions and intermediary organizations outside the industry, and has formed a good feedback mechanism with the market and users to build a digital cultural and tourism industry integrated innovation ecosystem in order to efficiently promote the innovation of the digital cultural tourism industry. Usually, the research of innovation ecosystem includes research on its elements, operation and development. Therefore, in-depth analysis of the construction mechanism of the digital cultural tourism industry integration innovation ecosystem starts from three aspects of factor mechanism, motivation mechanism and evolution mechanism, which can effectively analyze the innovation output mechanism of the system.

1. Factor mechanism. The natural innovation ecosystem includes biological communities and non-material environments. The biological communities include producers, consumers, and decomposers. The digital cultural tourism innovation ecosystem has a similar composition. As shown in Figure 4-1: (1) Producer. In the traditional industries of innovative producers, large-scale core enterprises play a major role in the process of innovation and hold the direction of innovation, while other small and medium-sized enterprises only play a supporting role. Creativity and technological innovation are equally important in digital cultural tourism, so SMEs also play an important role in innovation, especially in non-technical innovation. Therefore, research universities, scientific research institutions, core enterprises, and innovative small and medium-sized enterprises play the role of producers in the system and are innovative producers. (2) Consumer. Consumers are mainly composed of digital cultural tourism core enterprises and innovative small and medium-sized digital cultural tourism enterprises, mainly responsible for innovative transformation tasks, including digital technology companies, cultural tourism enterprises and related departments. Consumers transform innovation into products, services, technologies, business models, etc. Consumers have promoted innovative productization, commercialization and industrialization, and accelerated the implementation of innovation. (3) Decomposer. Decomposers can decompose innovative products or services. The main purpose of producer innovation is to better serve users, while users continue to provide innovative producers with new power through continuous feedback on digital cultural tourism products or services. Innovation can be produced. The digital cultural tourism market and tourists can provide timely feedback on the innovation of digital cultural tourism in a timely manner. In the consumer-led market, it gives innovative suppliers a new impetus for innovation. (4) Intermediary institution. It includes financial institutions, consulting agencies, etc. The main task in the system is to assist other entities to innovate. The existence of intermediary institutions can reduce the cost and risk of innovation by providing innovative services to the core entities (producers and consumers) of innovation. At the same time, it also acts as a catalyst to accelerate the system. Innovative output. (5) Innovation environment. The innovation environment of the digital cultural tourism industry innovation ecosystem includes the external
environment and the internal environment. The external environment includes policy environment, economic environment, social environment, technological environment, natural environment and legal environment. The innovation environment plays an important external role in the integration and development of the digital cultural and tourism industry. On the one hand, the government needs to provide a good innovation environment for it, and on the other hand, digital cultural and tourism companies need to constantly adapt to the environment.

6. **Type of innovation.** Innovation in the innovative ecosystem usually refers to technological innovation. The innovation in the digital cultural and tourism industry innovation ecosystem includes not only technological innovation, but also innovation in products, services, business models, management models, and laws.

2. **Dynamic mechanism.** Only when the heterogeneous subjects within the system maintain friendly cooperative relations can the innovation ecosystem continue to operate stably.

1. **Supply-demand relationship.** The operation of the ecosystem requires a certain force to promote the circulation of material and energy within the system. The supply-demand relationship is the core mechanism of the operation of the ecosystem. Analogous to the ecosystem, and the digital cultural tourism industry integrates the supply and demand of innovation energy within the innovation ecosystem for the operation of the system provide impetus for the system. The supply-demand relationship of the market is the driving mechanism for the integration of the digital cultural tourism industry with the innovative ecosystem.

2. **Strategic driver.** Governments, research universities, research institutions, etc. undertake major tasks for national development. From a strategic perspective, the state encourages scientific research departments to develop scientific and technological innovation and invest in basic innovation in related industries, such as strategic emerging industries, high-tech industries, etc. The strategic driver provides impetus for the digital cultural tourism industry's integrated innovation ecosystem.

3. **Profit driver.** Innovation can enhance the core competitiveness of enterprises, and enterprises can rely on innovation to occupy the market and defeat opponents to obtain excess profits. Therefore, because the interests of the enterprises in the digital cultural tourism industry have the motivation to innovate, the joint innovation of the enterprises promotes the development of the entire industry and provides power for the digital cultural tourism industry innovation ecosystem.

4. **Market option.** Digital technology accelerates the feedback from users and the market, and innovative producers generate innovation power to meet consumer needs. The digital economy builds a bridge between innovative producers, consumers, and decomposers, and can accelerate the feedback of decomposers on innovative products or creative issues to innovative producers and consumers.

5. **Win-win Cooperation.** Enterprises realize the complementation of the resources and advantages possessed by different enterprises by selecting or constructing an enterprise technological innovation ecosystem. Core enterprises and small and medium-sized enterprises continue to improve their own technological level by integrating into the enterprise technological innovation ecosystem to achieve a win-win and win-win situation. Improve competitive advantage.

3. **Evolution Mechanism.** The construction of an innovation ecosystem in the digital cultural tourism industry is not a simple combination of elements, but a self-regulating, evolving, and stable innovation ecosystem that can effectively promote innovation through continuous cooperation and competition. It can be divided into system construction period, system symbiosis period and system maturity period.

1. **System Construction Period.** This period is
the initial stage of system construction. The various elements are combined due to supply and demand, strategic drive, profit drive, market selection, and win-win cooperation. At this time, the system is only the primary element of cooperation. The self-interested behavior among heterogeneous subjects is more obvious, and the environment adaptability is weak, and the system is extremely unstable. The competition between companies in the same industry is obvious, and companies in different industries are only simple cooperative relationships. Once companies are found to be harmful to their own interests, they will violate the cooperation agreement. At the same time, the service capabilities of the government and intermediary agencies are limited, and the system is easily broken. (2) System Symbiosis Period. This is the mid-term of system construction. At this time, enterprises in the industry cooperate more closely, and can maintain long-term cooperative relations from the perspective of partners. At this time, the cooperation between various elements can obtain greater benefits than separate operations. However, due to the fermentation of self-interested behaviors of heterogeneous entities, enterprises in different industries in the system still have innovation environment risks, entity default risks, integration failure risks, and lack of talent risks, etc. The existence of risk factors causes the technological innovation ecosystem easily broken after the construction and the poor ability to continue innovation. (3) System Mature Period. This is the later stage of system construction. After the continuous competition and cooperation of members in the system, the competition and cooperation relationship is gradually improved, and a standardized contractual cooperation relationship is established. At this time, while considering the benefits among members, they must also consider the cost of default and the benefits of the entire system. At the same time, the internal members of the system are in a dynamically updated state, and unqualified members are continuously eliminated, and new members are constantly joining. The service capabilities of the government and intermediary agencies have been continuously improved, the goals of the various elements have been coordinated, the entire system has been operating stably, evolving, and innovation capabilities have continued to improve.

![Figure 2. Digital cultural tourism industry integration and innovation ecosystem construction.](image-url)
5. Conclusion and Suggestion

5.1. Conclusion

In the digital economy, the participation of digital technology has effectively promoted the innovation and development of cultural and tourism integration. Through the analysis of the existing innovation mechanism and the theory of industrial integration, the foundation of the digital cultural and tourism industry integration and innovation ecosystem is analyzed, that is, the inter-industry integration and innovation mechanism. It includes cross-innovation mechanism, agglomeration spillover mechanism, risk sharing mechanism, scale economy mechanism, profit sharing mechanism, user feedback mechanism and competition effect mechanism. The inter-industry integration and innovation mechanism promotes the stable and continuous innovation of the integration of the cultural and tourism industry, and provides a foundation for the construction of an integrated innovation ecosystem for the digital cultural and tourism industry. The integrated and stable digital cultural tourism industry and other heterogeneous entities cooperate to build a digital cultural tourism industry integrated innovation ecosystem that can effectively promote the innovation of the digital cultural tourism industry. Focusing on the analysis of the construction of the integrated innovation ecosystem of the digital cultural and tourism industry, the construction process of the integrated innovation ecosystem of the digital cultural and tourism industry is analyzed from three aspects: element mechanism, driving mechanism and evolution mechanism. Clearly utilize the advantages of all heterogeneous subjects to effectively promote sustained and stable innovation.

5.2. Suggestion

Combining the above-mentioned analysis of the construction foundation and element mechanism, driving mechanism and evolution process of the digital cultural and tourism industry integrated innovation ecosystem, it proposes an accelerated digital cultural and tourism industry integrated innovation ecosystem from four aspects: digital transformation, innovation environment, integrated channels and talent training suggestions for constructing countermeasures.

1. **Accelerate the digital transformation of enterprise communities in the digital cultural tourism industry integration and innovation ecosystem.** Cultural tourism enterprises should actively carry out digital transformation and integrate digital technology into the innovation and development of enterprises, so as to lead cultural tourism with digital technology, promote digital technology innovation with cultural tourism development, realize the coordinated development of digital technology and cultural tourism industry, and strengthen the industry stable development of integration. To accelerate digital transformation, cultural and tourism enterprises should transform from three aspects: improving service levels, creating service products and enterprise digital operations. **First of all,** cultural tourism companies belong to the service industry. Accelerating digital transformation should start from improving service quality, using big data technology to explore the real needs of tourists and collecting their suggestions for cultural tourism companies, and use digital means while continuously meeting the new needs of users and solving the practical problems it faces. **Secondly,** cultural tourism companies should use digital technology to integrate cultural tourism products to provide users with high-quality experience and personalized services. High-quality experience can display tourism cultural products in the park through high-tech methods such as 4D, VR, and holographic projection; personalized services, such as Disneyland and Fangte Park, use scan
code to download the tourism park app, and users can use the software inside Prompt to find tourist attractions or experience areas in the park, and to understand the content of each item through the app, and follow the prompts to understand whether it is suitable for your own experience. Finally, enterprise digital operations. Including enterprise internal management and external services for consumers, internal management including top-level design, operating system, employee management and training should be transformed to digital; external services for consumers include publicity for cultural and tourism companies, tourism park displays, fee payment methods, and information on scenic spots in the park are all provided to users in a digital way.

2. **Optimize the innovation environment of the digital cultural tourism industry integrating the innovation ecosystem.** The optimization of the innovation environment mainly relies on the power of the government. The innovation environment of the integration of the digital cultural and tourism industry can be deeply optimized from the three levels of macro-government, meso-scale industries, and micro-enterprises. **First of all,** the macro level provides a good innovation environment for the integration of the digital cultural and tourism industry from the aspects of improving laws and regulations, policy guidance, standardizing the market, communication infrastructure, and tourism public service construction. Give full play to the government's macro-control functions, relax the control on the integrated development of digital cultural tourism from the macro level, and promote the free flow of elements in different industries; **Secondly,** the meso-level industry encourages in-depth cooperation between the digital cultural and tourism industry through policies, promotes cooperation between universities, research institutes, intermediaries and the digital cultural and tourism industry, provides an innovative foundation and guarantee for industrial development, and realizes the coordinated development of heterogeneous subjects; **Finally,** the micro-level guide and encourage cultural tourism enterprises to increase R&D investment, and give corresponding policy preferences. Give full play to the authority of the government, guide cultural tourism enterprises to actively integrate and develop with digital technology companies, carry out diversified cooperation, and enhance the stability of the integration of the digital cultural tourism industry.

3. **Multi-channel integration enhances the innovation capability of the integrated innovation ecosystem of the digital cultural tourism industry.** Digital cultural tourism integrates cultural connotations into the tourism experience through digital technology, which can be carried out through online and offline channels. **First of all,** offline channels are the traditional way of digital cultural and tourism integration. Digital technology is used in tourist attractions and main parks to integrate culture into virtual scenes, giving people an immersive scene experience. You can refer to Universal Studios "Harry Potter", Disney "Pirates of the Caribbean", Fantawild Oriental Myth "Nu Wa Patching the Sky" and other 4D experience theaters, which will bring visitors a multi-sensory excitement through digital scenes. Impress deeply and enhance the travel experience. **Secondly,** online digital cultural tourism provides users with a homeless travel experience through short videos, webcasts, cloud viewing exhibitions and cloud tourism and other cultural tourism online services. Users can experience scenic spots around the world through the platform. Since there is no on-site experience, the design and experience of online travel are more important than offline travel.

Cultural and tourism enterprises should make full use of technologies such as the Internet and
big data to turn cultural and tourism resources in tourist destinations into online resources, and provide users with products and services in a more targeted and personalized way.

4. **Strengthen the cultivation of microscopic talent elements in the cultural and tourism industry integration and innovation ecosystem.** The fundamental micro-element of the integration of the digital cultural and tourism industry is talents, and talents play a vital role as the smallest unit of integration in the digital cultural and tourism industry. The integrated development of digital culture and tourism requires a large number of compound talents who understand both digital technology and professional domain knowledge. The cultivation of compound talents needs to be coordinated and cultivated from the three levels of government, universities and enterprises. **First,** from the government level. Increase the educational investment and scientific research investment in the cultivation of digital technology innovative talents, and set up digital cultural and tourism-related professional qualification examinations; at the same time, it is necessary to strengthen the compounding of professional knowledge in universities and cultivate more digital technology-related compound talents. **Second,** from the university level. First, establish digital cultural tourism related majors and increase related teaching investment, such as related laboratory construction and teacher-related training. Second, continue to communicate with internationally renowned universities to explore ways to cultivate innovative talents in digital cultural tourism. Third, actively cooperate with relevant companies to cultivate talents that meet social needs; **Finally,** from the enterprise level. In the process of enterprise integration development, we must pay attention to the cultivation of interdisciplinary talents, actively carry out employee training, and regularly conduct learning and exchanges with integrated enterprises. At the same time, companies should formulate incentive systems to attract relevant talents, and promote the cultivation of digital cultural tourism related talents. In addition, the government, universities, enterprises, etc. should actively cooperate to give full play to the synergy of government, industry, university, and research.

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