

Digital Scene Construction of National Parks: Dilemma and Path

Pengfei Duan^{1, 2, a}, Yao Yang^{1, 2, b}, Runhua Gong^{1, c, *}

¹Puer University, Puer Yunnan, 665000, China

²Minzu University of China, Beijing 100081, China

^a233669998@qq.com, ^b852117732@qq.com, ^{c, *}2320682761@qq.com

Abstract. China's national park system has become an important part of the world national park system from pilot to official establishment. Preliminary progress has been made in the scene construction of digital technology, but there is still theoretical discussion and practical application in the construction of national parks, the relationship between digital technology and the protection and utilization of national parks, and the development path of digital national parks. Starting from the dilemma of China's national park system construction, this paper puts forward exploratory research plans for the new development path of national park development, so as to achieve great significance to protect the rich biodiversity of national parks, inherit precious natural resources and excellent human resources, and promote the harmonious coexistence between man and nature.

Keywords: Digital Technology; National Park; Protection and Utilization; Scene Construction.

1. Introduction

National park is not only an important form of combining human civilization and natural civilization, but also an important form of life community composed of mountain-water-forest-field-lake, grass-sand-ice-animal-human. Since the establishment of the --Yellowstone National Park, the first national park in 1872, various countries have also built their own national park systems for different purposes. At present, more than 5,000 national parks are established in more than 100 countries and regions that meet IUCN (International Union for Conservation of Nature) standards (Peng Jian, 2019). Since China first proposed the establishment of the national park system in 2013, it has started the construction of national parks, and provided guidance and norms in institutional reform, institutional setup, layout plan, system construction, boundary protection, functional zoning, and management methods (Zhang Yujun, 2022). China has set the northeast tiger leopard, qilian mountains, giant panda, sanjiangyuan, Hainan tropical rainforest, wuyi mountain, Shennongjia, puda cuo, qianjiangyuan, nanshan 10 national park system pilot, pilot area involving 12 provinces, a total area of more than 2200 square kilometers, accounting for about 2.3% of China's land area, and formally established in 2021, the giant panda, northeast tiger leopard, Hainan rainforest, wuyi, the first batch of national park, become an important part of the world national park system.

With human beings from primitive hunting and gathering, agricultural civilization, industrial civilization, to the new era of digital civilization, ecological civilization. The booming development of digital technologies such as VR, 5G, Internet of Things, artificial intelligence, big data and cloud computing, and the transformation from physical space, social space and psychological space to virtual space, has brought about a new transformation of production and life ecology. Digital technology has triggered a comprehensive change from the factors of production to productivity to the relations of production (Wang Junhao et al., 2021). As digital technology, especially 5G technology, brings the high-throughput and low-delay "Internet of everything", and improves the conditions for new production and living forms in the digital age, various intelligent production and living scenarios such as digital factories, digital education, digital medical care and digital media will develop relatively rapidly (Jiang Xiaojuan et al., 2022). Under the national strategy of "digital China" lead, digital technology is deep penetration and promote the innovation and development of national park, digital technology will become a national park in the future development and the transformation and upgrading of the new engine (Chen Ye, 2022), China's national park started late, but under the

digital technology blessing, is expected to achieve "corner overtaking". China not only has the rich natural, geographical and biological resources, and has the ancient and profound cultural heritage and diverse national culture (Zhang Yujun, 2022), provide rich material for the national park digital scene construction, under the background of digital age, digital scene construction innovation national park, better reflect the national park for public welfare, universal sharing concept.

2. Research Status

At present, the concept of national parks has been accepted by most countries and regions in the world, but due to different social backgrounds, different countries have formed different national park development paths. Li Zhenghuan et al. (2020) summarized the four value orientation development paths of national parks: pragmatic recreation path, landscape nationalism path, landscape democracy path and natural ecological conservation path. In particular, corresponding tourist management tools have been developed for the recreational utilization and protection of national parks, Such as the recreational opportunity spectrum (ROS) (RN Clark et al, 1979), Acceptable Change Limit (LAC) (Stankey et al, 1984). Tourism ecological footprint (Zhang Jinhe, 2004), Visitor experience and resource protection (VERP)(Manning, 2001), et al., To coordinate the contradiction between nature conservation and recreation utilization in national parks. With the development of digital technology, the digitalization of tourism, museums, digital twin factories, game VR, metaverse, etc., the new scenes of virtual space have developed rapidly in the practical field, improving a new path to coordinate the contradiction between the protection and utilization of national parks."In his book" the Coming Scene Era, "Robert Scoble) said," In the next 25 years, the Internet will enter a new era: the Scene Era. ". Preliminary progress has been made in the research on the scene of digital technology, but there is still a lack of theoretical discussion and practical application on the construction of national parks in the digital age, the relationship between digital technology and the protection and utilization of national parks, and the development path of digital national parks. Therefore, starting from the predicament of China's national park system construction, this paper puts forward exploratory research plans for the new development path of national parks, in order to protect the rich biodiversity of national parks, inherit precious natural resources and excellent human resources, and promote the harmonious coexistence of man and nature.

3. The Dilemma of China's National Park System Construction

3.1 Dilemma in National Park System Construction 1: Protection and Utilization

As the original concept of a national park, its essence lies in both the "protection" and the "rational use" of natural resources (Zhang Yujun, 2022c). The General Plan for the Establishment of a National Park System defines national parks as specific land or Marine areas that are approved and managed by the state, with clear boundaries, and with the main purpose of protecting large-scale natural ecosystems representative of the state, and realizing the scientific protection and rational utilization of natural resources. The primary function of national parks is to protect the authenticity and integrity of important natural ecosystems, as well as the comprehensive functions such as scientific research, education and recreation. The national park system carries the public welfare cause, and its mission is "protection first".(The General Office of the CPC Central Committee and The State Council issued the Overall Plan for Establishing a National Park System. http://www.gov.cn/zhengce/2017-09/26/content_5227713.htm) National park as a kind of public goods, due to its special functional value, both universal sharing, and to reduce human intervention, thus produce the contradiction, how to use and contradiction, from the present, China's national park implements the most strict protection, actually more prominent natural harmonious coexistence, human universality did not reach the best welfare level, although the national park is defined as the premise of protection, but for economic purposes, tool rational often "overcome" the value rationality. The destruction of human activities to

the national park ecosystem occurs. Therefore, protection and utilization seem to be an irreconcilable contradiction.

3.2 Difficulties of National Park System Construction 2: "Physical Space" and "Digital Virtual Scene"

The question is whether we can find a solution in the digital age, according to the empirical cases of the practical community and the theoretical research of academia, digital national parks may be the best means of improving conservation and utilizing utility. The digital age and the COVID-19 epidemic have brought opportunities and impetus for the development of digital cultural tourism. The concept of "meta-universe" has become a hot spot nowadays, and its characteristics of fuzzy boundary and space-time expansion, highly immersive sensory extensiveness, iterative thought of human and machine integration, and new ecological construction have been fully reflected (Yan Jiaqi et al., 2022). As Mr Qian Xuesen in 1990 will VR technology into more in line with the Chinese cultural context of the "spirit" (Zhang Hui, etc., 2021), national park can digital technology to reshape the form of human society, scene theory logic and research framework, answer whether digital virtual national park become a national park alternative physical space alternative question. In the digital virtual national park scene, improve the awareness of national parks and improve the quality of national parks. Can China's national park construction take advantage of the curve overtaking with the "late-mover advantage"?

3.3 Dilemma in National Park System Construction 3: "Cognitive Gap" and "Digital Divide"

(A survey of 130 people found that only 3 people could answer the above concepts and questions in detail, with a selective bias possible because random sampling was not used.) China's national park system adheres to the public welfare and sharing of the whole people, but there is a "cognitive gap" between the national park system, which is embodied in the unclear concepts of national parks, national cultural parks, national forest parks and national geological parks. What national parks are there in China and what are the value of national parks? The above questions were found that fewer people could be answered through preliminary research. In addition to facing the "cognitive gap", digital national parks will also face a "digital divide". In 2004, DiMaggio et al. suggested that the digital divide has gone through two stages: the digital divide caused by differences in access opportunities and the digital inequality caused due to differences in the use of the Internet. Therefore, explicit revealing various values of national parks and analyzing the public response to the corresponding values can provide a basis for management decision-making and promoting public participation in the realization of national park value (Sun Kun et al., 2021). The dual superposition of "cognitive gap" and "digital gap" affects the implementation effect of national symbol, national public welfare and national sharing of national parks.

4. A New Path of National Park System Construction

4.1 Digital Scene Construction of National Park Construction

Theoretically, since Goffman's drama theory pioneered the research paradigm of "scene" (Goffman, 1983), the scene has become an important analysis unit of social life research, and with the rise of digital economy, it has been widely used in communication science, drama performance, information and communication and other fields. The new round of scientific and technological revolution has changed the way people produce and live the ecology. Digital technology has been integrated into all aspects, providing conditions for the innovative development of national parks in the context of the digital age. Based on the study of tourist experience, the scene has been introduced into the field of tourism research by domestic scholars with the concept of "tourism situation" (Xie Yanjun, 2005). Scene concept is the product of digital technology, it as a mobile Internet connection constructed "space and time integration" situation, is not limited to perceived physical space, and more from network space, electronic situation, virtual reality connected multidimensional

information flow, in fuzzy human consciousness of space and time boundary, realize a "face to face" and "more to many" interaction across time and space (Xia Shu, 2019). In practice, new tourism modes and new business forms such as smart tourism, digital creativity, digital entertainment, digital art display and immersive experience are emerging in China. The personalized, customized and quality digital tourism products emerge in an endless stream, bringing new opportunities to the development of tourist destinations. On the basis of accumulating five years of pilot work experience of digital scenic spots, Jiuzhaigou and Huangshan Mountain have put forward the concept of building "smart scenic spots". Panorama of the Palace Museum shows the Palace Museum and each palace through VR panoramic technology. The "metauniverse" has also developed from the conceptual level to the theoretical and applied level. From the theory and practice can be seen, the feasibility of digital national park construction. It can effectively solve the non-transferability of the physical space of national parks, and make the aesthetic value, popular science value, economic value, natural beauty and cultural beauty of national parks rely on digital technology to enhance the civic sense of the utility of national parks in China. Digital national parks can play an important role in the two target modes of emphasizing protection over utilization and emphasizing protection over utilization, and truly achieve the organic unity of protection and utilization.

4.2 Bridging the "Cognitive Gap" and the "Digital Divide" in National Parks

In July 2021, ten ministries and commissions jointly issued the 5G Application Sailing Action Plan (2021-2023), a detailed quantification of the medium-and long-term development goals of 5G applications in China, requiring that by the end of 2023, the 5G penetration rate should reach more than 40%, the number of users is no less than 560 million, and the number of 5G base stations per 10,100 people. 5G and related technologies are developing rapidly, supporting "everything is connected", from information to equipment, from services to products. So the difference in access opportunities in the "digital divide" is gradually decreasing, and the focus is to address the gap caused by the differences in the use of the Internet. As a national park for public welfare, it should be recognized by all mankind and be a public good. The digital economy based on digital technology is characterized in economies of scale, economies of scope and long tail effects. According to Metcalfe's rule (Metcalfe Law), the value of the network grows at a square rate of the number of users. When the network users exceed a certain critical point, the network value increases explosively, and the Internet platform effectively alleviates the problem of information asymmetry (Pei Changhong et al., 2018). Therefore, digital technology has natural advantages in bridging the "cognitive gap". As for the "digital gap", the government needs to publicize digital national parks, and choose convenient reception methods for the general public, such as TikTok, wechat public account, TV advertising, government SMS push, community grid promotion and other ways.

4.3 Digital Governance of National Parks

The advantages of digital technology enabling the construction of national park system, on the one hand, are conducive to the digital reproduction of national parks, the digital experience of national parks, and on the other hand, the storage of dynamic data of national parks. But the development of digital national parks will certainly bring about digital governance problems. Change the concept of government innovation governance and governance mode, establish a multi-level innovation monitoring data integration platform, through multi-level innovation information island between departments, promote and implement scientific and technological innovation information openness, establish perfect innovation data management regulation system, accelerate the construction of new digital infrastructure (Chen, etc., 2020). The effective governance of the national innovation system urgently needs to be supported by modern scientific methods and means. The digital transformation of the national innovation governance is an effective choice to realize the modernization of the national innovation governance capacity and promote the construction of an innovative country. In order to improve the government's digital governance capacity, from the perspective of national parks, the level of national parks itself will produce a large amount of big data, such as artificial intelligence

and other sensing equipment in ecological environment monitoring, biological migration, climate change, geological disaster prevention and other aspects can also play an important role. In the process of digitization of national parks, issues such as user information security and privacy protection may become areas of special attention. In this field, experts and scholars at home and abroad are currently conducting in-depth research, which is not the focus of this paper. In general, the digital governance of national parks involves not only the digital governance issues in the digitalization process of national parks, but also the digitalization issues in the management process of national parks themselves, as well as the information security and privacy protection issues of public participation.

Acknowledgments

Reserve Talents Training Program for Young Academic and Technical Leaders of Pu 'er University: Tourism Economics (QNRC20-04); Research on Industrial Policy System for Promoting High-quality Development of Traditional Service Industry in Yunnan Province (Project No.: QNRC20-05); Regional Structure, Industrial coupling and Development Strategy of Digital Economy in Ethnic Regions (BZKY2022102).

References

- [1] Chen Kaihua, Feng Ze, Sun Qian, 2020. Innovative Big data, innovative governance efficiency and digital transformation [J]. *Research and Development Management* (06):1-12.
- [2] Chen Ye, Jia Junqi, 2022. A New Path of tourism destination development under the digital economy [J]. *Tourism Journal* (04): 6-8.
- [3] Jiang Xiaojuan, Jin Jing, 2022. Review and Outlook of China's Digital Economy Development [J]. *Journal of the Party School of the CPC Central Committee (National Academy of Governance)* (01):69-77.
- [4] Li Zhenghuan, Zhao Yuchen, 2020. Interpretation and Power Practice: Theoretical Travel in National Parks [J]. *Tourism Science* (05): 1-16.
- [5] Pei Changhong, Ni Jiangfei, Li Yue, 2018. Political Economy analysis of Digital Economy [J]. *Finance and trade economy* (09): 5-22.
- [6] Peng Jian, 2019. Protected natural area system with national parks as the main body: Connotation, composition and construction path [J]. *Beijing Forestry University Journal (Social Sciences edition)* (01), 18:38-44.
- [7] Sun Kun, Tang Chengcai, Hou Bing. -- takes Qianjiangyuan National Park as example [J]. *Drought Area Resources and Environment* (08), 35:175-183.
- [8] Scober, Israel, 2014. *The Coming Scene Era* [M]. Zhao Qiankun, Zhou Bao, translated. Beijing: Beijing United Publishing Co Department: 11.
- [9] Wang Junhao, Zhou Shengjia, 2021. The Status quo, characteristics and spillover effects of China's digital industry development [J]. *Quantitative economy and technical economy Research* (03): 103-119.
- [10] Xie Yanjun, 2005. *Tourism Experience studies a phenomenological perspective of --*[M]. Tianjin: Nankai University Press.
- [11] Xia Shu, 2019. Scentionism in the Digital Era [J]. *Cultural Horizontal Horizontal* (5): 88-97; 143.
- [12] Yan Jiaqi, Chen Ruiqing, Chen Hui, Shenyang., Analysis of the development of the universe industry and its impact on the media industry [J]. *News and writing* (01):68-78.
- [13] Zhang Hui, Pei Yajun, 2021. Strategic consideration of the technology term "Chinese flavor" - -the translation from Qian Xuesen to VR name "Lingjing" rise [N]. *Guangming Daily* (05).
- [14] Zhang Jinhe, Zhang Jie, 2004. Tourism ecological footprint model and empirical analysis of Huangshan City [J]. *Journal of Geography* (05): 763-771.
- [15] Zhang Yujun, 2022. Exploration of the Concept of National Park [J]. *People's Forum · Academic Frontier* (04): 66-79 + 101.

- [16] Clark R N, Stankey G H. The recreation opportunity spectrum: a framework for planning, management, and research [J]. United States.pacific Northwest Forest & Range Experiment Station. u.s.d.a.forest Service General Technical Report Pnw, 1979.
- [17] George H. Stankey & Stephen F. McCool (1984) Carrying capacity in recreational settings: Evolution, appraisal, and application, *Leisure Sciences*, 6:4, 453-473.
- [18] GOFFMAN E, 1983.The interaction order[J]. *American sociological review*, 48(1):1-17.
- [19] Manning R. Visitor experience and resource protection: A framework for managing the carrying capacity of national parks [J]. *Journal of Park & Recreation Administration*, 2001, 19(1):93-108.
- [20] Paul DiMaggio et al., *From Unequal Access to Differentiated Use: A Literature Review and Agenda for Research on Digital Inequality*, Report prepared for the Russell Sage Foundation, Working Paper 29, Princeton University, Center for Arts and Cultural PolicyStudies, Princeton, NJ, 2003.