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INNOVATIVE APPROACHES TO DEVELOPING DIGITAL CULTURE IN SOUTH KOREA

The Republic of Korea is a world leader in digital technologies, and its innovative approaches actively influence the development of digital culture. This study aims to analyze innovative approaches to developing digital culture in South Korea and identify factors contributing to effectively implementing digital technologies in the cultural sphere. The main areas of the study include assessing the impact of technologies on cultural practices, analyzing public policies and strategies, and studying examples of successful integration of digital solutions into the cultural environment. The focus is on the relationship between digital innovations, cultural transformations, and their role in preserving cultural heritage and stimulating creativity. The scientific significance of the work lies in expanding the theoretical understanding of digital culture, and the practical significance is in developing recommendations for the effective implementation of digital technologies in the cultural sphere. The research methodology includes an integrated approach based on the analysis of documentary sources and statistical data to study innovative approaches to developing digital culture. The study also uses the game theory method and the network analysis method, which allows for a deeper understanding of the relationships between government organizations and cultural institutions. The study found that successful digitalization of South Korean culture depends on government support and collaboration between cultures and technologies. The findings could serve as a model for other countries seeking digital transformation in the cultural sphere.

Keywords: digital culture, innovative approaches, South Korea, digital technologies.

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Оңтүстік Кореядағы цифрлық мәдениетті дамытудағы инновациялық тәсілдер

Корея Республикасы цифрлық технологиялар бойынша жаһандық көшбасшы және оның инновациялық тәсілдері цифрлық мәдениеттің дамуына белсенді әсер етеді. Бұл зерттеудің мақсаты – Оңтүстік Кореядағы цифрлық мәдениетті дамытудың инновациялық тәсілдерін талдау және мәдени салада цифрлық технологияларды тиімді енгізуге ықпал ететін факторларды анықтау. Зерттеудің негізгі бағыттарына технологиялардың мәдени тәжірибеге әсерін бағалау, мемлекеттік саясаттар мен стратегияларды талдау және мәдени ортаға цифрлық шешімдерді сәтті интеграциялау мысалдарын зерттеу кіреді. Цифрлық инновациялар мен мәдени трансформация арасындағы қарым-қатынасқа, сондай-ақ олардың мәдени мұраны сақтаудағы және шығармашылықты ынталандырудағы рөліне басты назар аударылады. Жұмыстың ғылыми маңыздылығы цифрлық мәдениет туралы теориялық түсінікті кеңейтуде, ал практикалық маңыздылығы мәдениет саласына цифрлық технологияларды тиімді енгізу бойынша ұсыныстар әзірлеуде. Зерттеу әдістемесі цифрлық мәдениетті дамытудың инновациялық тәсілдерін зерттеу үшін құжаттық дереккөздер мен статистикалық деректерді талдауға негізделген кешенді тәсілді қамтиды. Зерттеу сонымен қатар мемлекеттік ұйымдар мен мәдениет мекемелері арасындағы қарым-қатынастарды тереңірек түсіну үшін ойын теориясы мен желілік талдауды пайдаланады. Зерттеу нәтижесінде Оңтүстік Корея мәдениетіне цифрлық технологиялардың сәтті интеграциясы мемлекеттік қолдау мен мәдениеттер мен технологиялар арасындағы ынтымақтастыққа байланысты екені анықталды. Жұмыс нәтижелері мәдениет саласын цифрлық трансформациялауға ұмтылатын басқа елдерге үлгі бола алады.

Түйін сөздер: цифрлық мәдениет, инновациялық тәсілдер, Оңтүстік Корея, цифрлық технологиялар.

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Инновационные подходы к развитию цифровой культуры в Южной Корее

Республика Корея является мировым лидером в области цифровых технологий, и её инновационные подходы активно влияют на развитие цифровой культуры. Целью настоящего исследования является анализ инновационных подходов к развитию цифровой культуры в Южной Корее и выявление факторов, способствующих эффективному внедрению цифровых технологий в культурную сферу. Основные направления исследования включают оценку воздействия технологий на культурные практики, анализ государственной политики и стратегий, а также изучение примеров успешной интеграции цифровых решений в культурную среду. В центре внимания находится взаимосвязь между цифровыми инновациями и культурными трансформациями, а также их роль в сохранении культурного наследия и стимулировании творческого потенциала. Научная значимость работы заключается в расширении теоретических представлений о цифровой культуре, а практическая – в разработке рекомендаций для эффективного внедрения цифровых технологий в культурную сферу. Методология исследования включает в себя комплексный подход, основанный на анализе документальных источников, статистических данных для изучения инновационных подходов в развитии цифровой культуры. Также в исследовании применяется метод теории игр и метод сетевого анализа, что позволяет более глубоко понять взаимосвязи между государственными организациями и культурными учреждениями. Исследование показало, что успешное внедрение цифровых технологий в культуру Южной Кореи зависит от государственной поддержки и сотрудничества между культурами и технологиями. Результаты работы могут послужить моделью для других стран, стремящихся к цифровой трансформации культурной сферы.

Ключевые слова: цифровая культура, инновационные подходы, Южная Корея, цифровые технологий.

Introduction

South Korea's digital culture is characterized by a unique combination of traditional cultural values and new digital technologies that facilitate the creation of innovative cultural practices and products. South Korea has been actively pursuing digitalization in various fields, including art, music, film, and education, which is evident in the creation and distribution of digital content, the popularity of K-pop and digital games, and the use of new technologies to preserve and broadcast cultural heritage. In particular, "digital" is considered a key term that best describes contemporary Korea. However, as Kim explains, "Digital Korea is not only the rise of digital technology, but also digital culture and, ultimately, the convergence of technology and culture" (Kim, 2017). A significant aspect of Korea's digital culture is the high level of integration of technology into everyday life, which includes the widespread use of the Internet, mobile applications, and social platforms, as well as the introduction of artificial intelligence and virtual reality into the cultural and educational spheres, making it one of the most dynamically developing in the world.

The rapid development of digital technologies, which have a tangible impact on all spheres of life,

is currently being discussed in the scientific field. In the context of the modernization of society and transformation of culture through new technologies, it becomes an important element of stimulating creativity and increasing the availability of cultural resources, which makes the study of innovative approaches in this area extremely popular.

However, despite the progress in the implementation of new technologies, South Korea faces some difficulties and problems. For example, the overload of the information flow, makes it difficult to effectively filter and understand cultural information that affects human critical perception. At the same time, the protection of copyright and intellectual property in the context of the distribution of digital materials remains an important problem, which leads to difficulties in legal regulation. South Korea's digital policy is promoted from the perspective of the Fourth Industrial Revolution. Therefore, it is important to analyze these areas in open innovation (Kim, Choi, 2020). The Bloomberg Innovation Index has recognized Korea as the most innovative country for seven out of the nine years the index has been published (Michelle, 2021). The 2022 World Intellectual Property Organization Global Innovation Index ranked the country sixth in the world and first in Southeast Asia, East Asia, and Oceania (World

Intellectual Property Organization, 2022). In the latest index, Korea ranked particularly high in human capital and research (first place) and knowledge and creative output (fourth place). The city of Daejeon is considered the largest knowledge-intensive R&D cluster in the world. Korea's digital policies have also been praised by the Organisation for Economic Co-operation and Development (OECD), which has described Korea as a "global science and technology hub" and has one of the most advanced digital economies in the world. The country has been named a leader in the information and communications technology (ICT) sector due to its high broadband usage, fiber optic connections, and commercial 5G subscriptions (Silvia, 2021). In addition, Korea has used these ICT connections to implement infrastructure innovations such as traffic data collection and smart city construction.

According to the above, the object of the study is the digital culture of South Korea, including its innovative approaches and processes of introducing digital technologies into the cultural sphere, and the subject is the mechanisms and strategies that contribute to this development. The purpose of the work is to analyze innovative approaches to the development of digital culture in Korea and identify factors that contribute to the successful implementation of digital technologies. The objectives of the study include studying and assessing the impact of technologies on cultural practices and analyzing government strategies and programs. For solving these problems, the methods of qualitative analysis, analysis of documentary sources and statistical data are used. The work uses a systematic and interdisciplinary approach focused on the interaction of technology and culture. The study puts forward a hypothesis that innovative approaches and strategies of state support contribute to the successful integration of digital technologies into the cultural sphere, which has a positive impact on creative activity and the preservation of cultural heritage. The significance of the work lies in understanding the processes of digitalization of culture, identifying methods for introducing technologies into the cultural sphere.

Literature review

In recent decades, South Korea has shown significant success in integrating digital technologies into the cultural sphere, which has become an important aspect of its global cultural diplomacy. The

development of digital culture in Korea has been widely studied in terms of digital transformation, innovative approaches in media and culture, and the impact of technology on traditional forms of cultural expression. Research also focuses on the role of new media in preserving and popularizing cultural heritage, as well as the challenges associated with the balance between technological innovation and the preservation of cultural traditions.

One such author of a study of Korean digital policy, Fiaz, finds that the success of Korean IT companies and the high adaptability of Korean consumers to new digital technologies are linked to a collaborative approach to using digital platforms, which facilitates greater cooperation and collaboration across various domains of life, including leisure and community initiatives (Fiaz, 2023). Goldsmith et al. argue that Korea has become a testing ground for "the deployment and penetration of digital technologies, as well as an important hub for innovation in mobile and consumer digital technologies and practices" (Goldsmith, 2011), while Holroyd suggests that the fruits of Korea's digital transformation can be seen as the technological foundation on which Korea's digital content industry has been able to expand and thrive (Holroyd, 2019).

South Korea's status as a global leader in digital development and new technologies is due to the introduction of broadband, which revolutionized the country's digital scale and introduced high-speed internet. By the early 2000s, Korea had achieved global recognition in this sector. The Korea Information Infrastructure (KII) project has played a key role in establishing an information technology-based economic model and developing network infrastructure (Figure 1).

In the digital politics of Korean culture, Hallyu occupies a significant place, which is raising the Korean economy to ever greater heights. It is also author Jin who argues that the growth of the app economy in South Korea in the 2010s is closely linked to the development of Hallyu, which has impacted app sales, advertising revenue, and digital goods transactions (Jin, 2017). In turn, Yoon analyzes how digital technologies were used in South Korea to combat the COVID-19 pandemic and how ideas about post-pandemic society were disseminated through political and news discourses (Yoon, 2024). Both authors emphasize the importance of digital technologies in contemporary social and economic processes in Korea, touching on both cultural and political aspects.

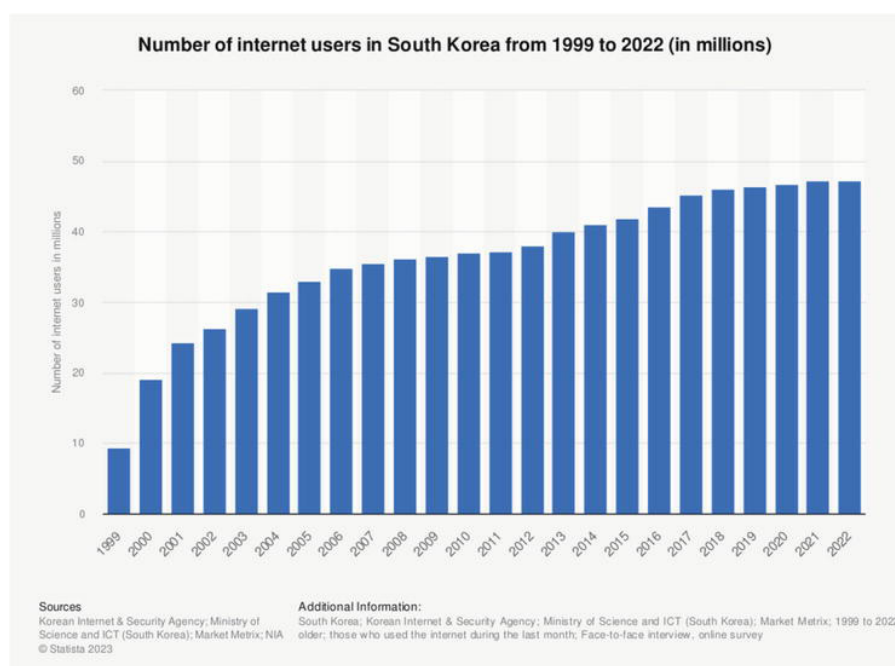


Figure 1 – Internet user rate in South Korea from 1999 to 2022 (in millions). (NIA, 2023)

Other studies have examined the South Korean state's strategies to use digital technology to effectively manage its population and provide a comfortable society as a whole (Kim, 2021; Kim and Chung, 2023; Lee, 2021). These works focus on the significance of digital technology in public administration and social control, which in turn affects cultural policy issues. In this context, Jin's work analyzes the role of digital platforms in the new wave of Korean culture and their impact on cultural diplomacy using the theoretical model of digital soft power. Particular attention is paid to the interaction between private digital platforms and the South Korean government, in particular the Korean Foreign Ministry's Facebook posts in 2022, as a tool for implementing the digital soft power strategy (Jin, 2024).

The topic of digitalization of cultural heritage is also not left without attention. Such works become the subject of active scientific discussions, especially in the context of financial, technical and format difficulties (Khalid, 2022). Another work talks about cultural heritage as an important resource for preserving natural and cultural diversity in a broader ecological context (Kubiv et al., 2020; Bobro, 2023). They emphasize that cultural heritage plays a key role in maintaining the sustainability of ecosystems and preserving cultural traditions, which requires an integrated approach to its protection and use.

Research materials and methods

The study primarily focuses on official documents, government programs and strategies aimed at supporting the digitalization of the cultural sphere, as well as reports and statistics on the introduction of technologies into cultural processes. In addition, scientific articles, studies and reviews on the impact of digital technologies on cultural changes are studied. The work uses the game theory method, which is aimed at analyzing the interaction of various participants in the digitalization of the cultural sphere of South Korea, such as government agencies and cultural institutions. Game theory allows us to model situations in which these participants make decisions that affect the overall result, taking into account their interests and strategies. This allows us to better understand how various players in the digital culture sphere can interact to achieve mutually beneficial results that contribute to the sustainable development of this area.

The network analysis method was used in conjunction with the game theory method. Network analysis helps to identify how key players interact and what role different networks play in the digitalization process. And game theory provides tools for analyzing the strategies of these players, their cooperation and competition. This integration of

methods allows for a deeper understanding of how innovative approaches in digital culture can develop under conditions of different strategic interactions and limited resources.

The stages of the research include several key phases. The preparatory stage includes collecting and analyzing literature, studying regulatory documents and government strategies related to digital culture in South Korea. The analytical stage involves a detailed analysis of documentation, reports, and statistical data. The data interpretation stage involves synthesizing the information obtained, identifying key factors in the development of digital culture, and assessing the effectiveness of existing strategies. The final stage involves formulating conclusions and recommendations for the further development of digital culture in South Korea.

Results and discussions

Digitalization of Culture in South Korea: Current Trends and Innovations

Digitalization of culture in Korea is a dynamic process of introducing new technologies into various areas of cultural life, including the arts, education, museums, and entertainment. In recent years, South Korea has become a world leader in digital innovation, actively integrating virtual reality (VR), augmented reality (AR), artificial intelligence (AI), and big data into cultural projects. These technologies are creating new forms of cultural expression such as digital art and interactive exhibitions. In this context, Korean cultural digitalization projects and programs contribute to the globalization of Korean cultural identity and the development of cultural industries. South Korea's Ministry of Science and ICT announced in September 2022 that the country's future technological developments will focus on six areas: artificial intelligence (AI), AI semiconductors, 5G and 6G communications, quantum, metaverse, and cybersecurity. The ministry also stated that public-private partnerships will be pursued to support and utilize human capital in the digital era (MCST, 2023).

Development of digital content and platforms. South Korea actively promotes digital content, especially music, films, animation, and video games. This influences the globalization of Korean culture, with a particular focus on digital platforms such as streaming services, social media, and online content platforms. Programs such as the K-Culture Platform and the Digital Content Globalization Program aim to expand the audience for Korean culture around

the world. According to the survey conducted by the Ministry of Culture, Sports, and Tourism (MCST) and Korea Creative Content Agency (KOCCA), in 2020 the content-based industry generated KRW 128,287 billion (approximately US\$ 108 billion) in sales, which registered a robust average growth rate of 4.9 percent per year for five years from 2016 to 2020. In 2020, content exports, such as movies, music, and broadcasting, recorded sales of US\$ 11.9 billion, representing a 16.3 percent increase year-to-year and a 17.1 percent growth rate on average for the five years from 2016 to 2020. The games industry led the export of content, which accounted for 68.7 percent of the total content-based industry exports in 2020. The game sector recorded an average annual growth rate of 25.7 percent in exports over the past five years (2016–2020), the highest growth rate for any sector in the content-based industry, and much higher than the content-based industry's average growth rate of 18.7 percent growth rate (MCST & KOCCA, 2022). The success of apps and websites has contributed to the development of a distinct sense of national digital identity and a distinctive digital culture. Cyworld, a South Korean prototype social network launched back in 1999, is just one example that provides a powerful insight into the extent to which Korean citizens have been remarkably early adopters of digital ways of communicating, sharing content, and networking (Han, 2021).

Innovations in Preserving Cultural Heritage. South Korea is developing projects related to the digitalization of cultural and historical objects and materials, which include the creation of digital archives and virtual tours. This allows a global audience to access cultural heritage. The use of VR and AR to create virtual museums and historical reconstructions provide unique opportunities for interactive cultural experiences. The Digital Archive of Korean Cultural Heritage program (National Archives of Korea) aims to digitize and preserve historical and cultural objects of Korea. It includes the creation of digital archives that provide access to key objects of Korean cultural heritage, such as ancient manuscripts, paintings, artifacts, and other historical materials. Another "Korea Cultural Heritage Foundation Digital Preservation Program" of the Korea Cultural Heritage Foundation aims to use technology to preserve and restore cultural assets. The goal of the program is to digitalize cultural heritage assets and reconstruct them virtually for public access. The International Symposium on Digital Heritage, established by the Korea Heritage Service in 2019,

is dedicated to discussing the digital transformation of cultural heritage in Asia (Korea Heritage Service 2021). It provides a platform for sharing innovative approaches to the preservation and use of cultural heritage, as well as analyzing the socio-cultural changes brought about by digitalization.

An early example of cultural heritage digitalization in Korea is the Miryeoksa Temple Digitalization Project initiated by the National Institute of Cultural Heritage in 1991. The goal was to create 3D models of the temple and perform its virtual restoration. In 2000, the Seorabeol Breathing Project in Gyeongju continued this practice by recreating the Silla royal capital using virtual reality technology, marking the first application of VR technology in cultural heritage digitalization. A 360° panoramic projector was introduced at the Gyeongju World Expo, providing viewers with an immersive experience. This project also served as the basis for an international symposium on digital heritage and Silla history. Professor Park of Konguk University writes about the process of digitizing the Seokguram Grotto, a UNESCO World Heritage Site that was first digitized in 2008 and 2011 by the KAIST GSCT team in collaboration with the National Museum of Korea and the Cultural Heritage Administration. The article describes the process of creating 3D models of the grotto using 3D scanning and plans to create a virtual museum of Seokguram based on this data (Park, 2012). In the article, the author discusses the values of Seokguram as a cultural heritage and how it can be digitized using modern exhibition technology for future generations.

In 2000, the state developed the National Strategic Plan for Cultural Heritage Information (2002–2006) to manage resources and integrate the country's heritage. Based on this, the Ministry of Culture, Sports and Tourism created a system to integrate heritage data into a single information base (Kan, 2011: 37). The project created a national cultural heritage portal that provides access to museum collections via the Internet, including text data, images, videos, 3D models and virtual tours.

Digitalization of Arts and Media. The application of new technologies in theatre, music and fine arts allows viewers and users to immerse themselves in new forms of artistic perception, creating unique multimedia experiences. The Creative Media Project (National Museum of Modern and Contemporary Art, Korea) aims to integrate digital technologies into contemporary art forms. Such projects include the use of multimedia technologies to create interactive exhibitions and visual

performances of art, with an emphasis on using new media to open up new frontiers of perception. The Korea Communications Commission is implementing the “Digital Media Promotion Program” to support digital media and the use of digital platforms for arts and culture. It includes the creation and promotion of new digital projects in film, television, music, and other forms of media. In 2006, the Ministry of Culture, Sports and Tourism established a “fund of funds” called the “Cultural Content Production Fund” to promote investment in the content-based industry. The fund of funds supports other industry funds such as the “Culture Account” and the “Film Account,” which in turn support various content-based industries, including films, performing arts, games, music, animation, characters, and dramas. The fund has provided KRW 2,621.8 billion (equivalent to US\$2 billion) in support from 2006 to 2021 (MCST and KOCCA, 2022). The fund was notably scaled up to its highest-ever level in 2023, reaching KRW 790 billion (equivalent to US\$ 632 million), which included supporting the K-content Fund (KRW 410 billion) (MCST, 2023). The establishment and significant expansion of the Cultural Content Production Fund have played a key role in supporting and developing the cultural and creative industries in Korea.

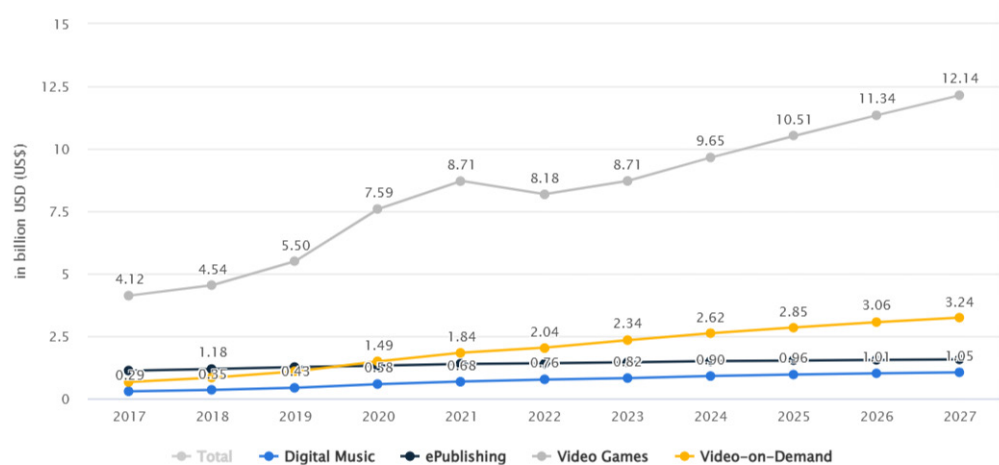
The digital media market in South Korea is projected to generate revenue of US\$14.66 billion in 2024. In this context, video games will account for the largest market share with a projected volume of US\$9.65 billion. This highlights the importance of the digital media market both in South Korea and globally. In South Korea, the digital media market is driven by innovative platforms and a tech-savvy population, which facilitates rapid growth and the adoption of new trends (Figure 2).

Consequently, South Korea continues to be an important player in the global digital media market, with a particular focus on video games as a key segment. Steady growth and adaptation to new technologies ensure the country is at the forefront of the region's digital transformation.

Digitalization of Education and Cultural Initiatives. In 2023, the South Korean Ministry of Education announced a vision for digital transformation of education. With the global spread of generative artificial intelligence (AI) such as ChatGPT, the ministry introduced a digital education innovation plan with the vision of “Realizing personalized education for everyone” (MOE, 2023). Government-supported online learning at the tertiary level has also increased. One such system is Korea Open Courseware

(KOCW), which is a system for sharing educational materials managed by the Korea Education and Research Information Service (KERIS) (Lee & Lee, 2024). Programs such as the Smart Content Project aim to use smart technologies in the cultural sphere to create adaptive content accessible to a wide audience, including educational and cultural initiatives for children and young people. Online platforms and digital educational resources are actively developed to popularize Korean culture and history. The K-Content Education Program, organized by the Korea Creative Content Agency (KOCCA), helps

educational institutions use Korean cultural content, including films, music, animation, and games, for educational purposes. The program introduces and utilizes digital technologies to improve the learning process and popularize Korean culture. The government's Smart Education initiative (Ministry of Education of the Republic of Korea) aims to integrate information and communication technologies (ICT) into educational institutions. The program utilizes virtual reality (VR), augmented reality (AR), and other digital technologies to create interactive educational platforms.



Notes: Data was converted from local currencies using average exchange rates of the respective year.

Most recent update: Mar 2024

Source: Statista Market Insights

Figure 2 – Digital media growth in South Korea – forecast for next years (Statista, 2024)

Consequently, the digitalization of culture in Korea is an important and multifaceted process that is transforming cultural industries through the integration of advanced technologies. These innovations open up new horizons for the creation, dissemination, and preservation of cultural assets. The digitalization of the cultural sphere helps to strengthen the country's position as a cultural and technological leader. Overall, these trends play a key role in ensuring the sustainable development of cultural industries and expanding the country's cultural influence.

Game Theory and Network Analysis Methods in the Study

In constructing a matrix by the game theory method in the context of stimulating innovation in the field of digital culture in Korea, the interaction

of two main players is presented (Table 1.): government agencies and cultural organizations (museums, theaters, galleries, etc.). There are 2 strategies: government agencies – “Support for innovation” (A) and “No support” (B) and cultural organizations – “Implementation of digital technologies” (A) and “Refusal to implement digital technologies” (B). Each cell of the matrix reflects the results (payouts) for each player depending on which strategy the other player chooses. This game does not involve competition between players, but focuses on finding the optimal position for both parties. This is reminiscent of the situation described in T. Schelling's work “Strategic Realism”, where such a course of the game is considered non-antagonistic (Shatrun, 2020).

Table 1 – Matrix in the context of promoting innovation within the digital culture sector in South Korea

| | Cultural organizations (A) | Cultural organizations (B) |
|--------------------------------|---|---|
| Government agencies (A) | (5, 5) – both sides benefit, joint efforts lead to the successful digitalization of cultural projects, which leads to the growth of cultural heritage and accessibility for a wider audience. | (3, 1) – government investment has led to partial success, but cultural organizations are not taking full advantage of the potential of digital technologies. |
| Government agencies (B) | (4, 2) – some nodes continue to function, but their interaction does not contribute to achieving an optimal result. | (1, 0) – government bodies and cultural organizations are losing the ability to exchange resources, which leads to stagnation of digital development. |

If both players choose strategy A, the outcome is optimal for both. The expected gain is (5, 5). This means that cultural organizations receive greater support and resources, which helps them successfully implement digital technologies. And government agencies achieve their goal of developing digitalization in the cultural sphere, which translates into high results for the economy. In network analysis, this can be described as a positive result of mutual integration. Close connections between nodes – state and cultural institutions – ensure the flow of information and resources, which leads to the creation of innovative products and cultural projects. These connections create a stable network, where each node (player) depends on others, and the result of cooperation leads to overall success. In the context of network analysis, one can expect an acceleration of innovation due to a dense network of knowledge, experience, and technology exchange. This creates a positive network effect, whereby an increase in the number of interacting players in the network increases the overall potential of the network for growth and innovation. In such a network, government bodies and cultural organizations become central nodes on which the development of the entire digital cultural ecosystem depends.

But when government bodies support innovation (strategy A), and cultural organizations refuse to implement digital technologies (strategy B), the result remains positive only for the government (3), since support is still directed to the cultural sphere. However, cultural organizations receive a minimal result (1), since they do not use the resources and technologies offered, which contributes to missed opportunities. When cultural organizations refuse to use digital technologies, although government bodies actively support them, this leads to network fragmentation. In a network context, this means that cultural organizations do not participate in this process of developing the country's digital culture. As

a result, disparate nodes are formed, where there is insufficient support and interaction with each other. In network analysis, the situation can be interpreted as weakened or ineffective connections between nodes. Network analysis shows how the lack of active participation of cultural organizations limits the potential of the entire network and leads to losses. Network analysis also helps to understand that the flow of resources between public authorities and cultural organizations will be limited. In a network context, this creates a lack of integration, when resources (funding, technology) are left aside and the potential for their use remains untapped.

The situation changes if cultural organizations decide to implement digital technologies, but government bodies do not provide active support. In this case, cultural organizations receive a lower score (2), since the implementation of technologies is hampered by the lack of support from society. Government bodies, despite the lack of full support, still receive a moderate payment (4), since partial implementation of technologies contributes to success, although not at a full level. In network analysis, this can be seen as a gap in network optimization, where some participants (cultural organizations) try to promote digitalization, but cannot effectively interact with other participants (government bodies). This leads to a loss of network potential – some nodes continue to operate, but their interaction does not lead to the maximum effect.

Finally, if both players choose strategy B (no digital implementation and support), the outcome for both is minimal (0, 1). In this case, there is a lack of both cultural innovation and government support, which can lead to missed opportunities and a lack of progress in digitalization. In a network context, strategy B (no digital implementation and support) leads to network collapse. When both governments and cultural organizations do not actively participate in the digitalization process, key nodes and

connections for the development of a digital culture network are missing. Without these nodes (institutions, platforms, initiatives), the entire network of interacting players remains stagnant and ineffective. In this context, governments and cultural organizations lose the ability to influence each other through the exchange of resources, which leads to a lack of digital progress and stagnation.

In consequence, the analysis of the matrix allows us to study possible scenarios of interaction between government bodies and cultural institutions, as well as to predict which strategies will lead to the greatest benefit for both parties. Without active participation and mutual support, digital culture cannot develop, and the network itself remains ineffective and isolated, which ultimately limits innovation and progress.

Conclusion

This article analyzes the role of innovative approaches in the development of digital culture in South Korea. Key factors contributing to the successful integration of digital technologies into the cultural sphere, such as government support, development of digital infrastructure, and active interaction between cultural and technological institutions, are studied. The digitalization process in Korea demonstrates successful examples of the

integration of new media, virtual technologies, and digital platforms into various cultural processes. As a result of a comprehensive analysis of game theory and network analysis methods, the following results and recommendations can be formulated:

- Strengthening cooperation: It is important to develop cooperation between public institutions and cultural organizations to accelerate digitalization and share resources.

- Preventing fragmentation: It is important to ensure that cultural organizations are actively involved in digitalization to avoid network gaps and missed opportunities.

- Optimizing participation: Gaps in cooperation need to be addressed to maximize the impact of collaborative digitalization.

- Minimizing digital backsliding: Backsliding in technology adoption should be prevented as it leads to stagnation and collapse of the network.

Ultimately, the study highlights the importance of a comprehensive approach to digital transformation in the cultural sphere and can be used as a model for other countries seeking to develop digital culture. The findings of the study confirm the importance of further improving government strategies and supporting innovative initiatives in the field of cultural technologies to ensure sustainable progress in this area.

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