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**FROM VIRTUAL REALITY TO REAL TRAVEL: THE SMART FUTURE OF Ganja-DASHKASEN TOURISM****Narmin Khaspolad Hasanova, Safura Mubariz Huseynova****Ganja State University****[n1000.hasanova@gmail.com](mailto:n1000.hasanova@gmail.com), [sefurehuseynova1995@gmail.com](mailto:sefurehuseynova1995@gmail.com)**

**Summary.** *"The study examines the existing potential of Azerbaijan's Western tourism region, the fundamental competitive challenges it encounters, and its development prospects within the context of smart tourism paradigms. Within the framework of the research, the region's natural resource base, historical-cultural heritage, and ecotourism potential are analyzed; furthermore, infrastructural deficiencies, the destination's weak representation on digital platforms, and the seasonal nature of tourism are evaluated as the primary destructive factors. Concurrently, the integration possibilities of virtual reality, artificial intelligence, and mobile technologies into the tourism sector are investigated, and their impact on consumer behavior and decision-making mechanisms is scientifically and theoretically substantiated. The article puts forward conceptual proposals aimed at formulating a sustainable smart tourism strategy, strengthening public-private partnerships, stimulating digital capital investments, and optimizing ecotourism activities. Ultimately, it is determined that innovative technologies play a multiplicative role in developing the region's tourism ecosystem and enhancing its global competitiveness."*

**Keywords:** artificial intelligence, digital transformation, digital visibility, ecotourism, Ganja-Dashkasan, innovative tourism, mobile applications, regional development, smart tourism, sustainable development, tourism branding, tourist behavior.

**INTRODUCTION.** In the contemporary global economy, the rapid development of information and communication technologies has driven profound transformations in the management, marketing, and service models of the tourism sector. Digital innovations, particularly virtual reality, augmented reality, and artificial intelligence, have altered the presentation methods of tourism products, emerging as pivotal tools that influence tourist behavior. Through these technologies, tourists are able to gain an enhanced visual and emotional experience regarding destinations prior to traveling.

The Ganja-Dashkasan economic region, which encompasses the western geographical areas of the Republic of Azerbaijan, possesses high regional attractiveness due to its unique recreational-landscape resources, ancient cultural-historical heritage, and ecotourism potential. However, the current empirical situation indicates that the region's existing tourism potential has not yet been optimized and maximized. This aforementioned disproportion is directly conditioned by weak digital marketing strategies and institutional infrastructural deficiencies. Against the backdrop of traditional communication channels losing their effectiveness in destination promotion, the sectoral application of innovative digital tools and smart approaches holds decisive and strategic priority for the development of the region's tourism ecosystem.

Within the framework of digital transformation in the contemporary industry, virtual reality technologies have established a fundamental paradigm of 'pre-vision or prior experiencing' in the tourism sector. This conceptual model provides potential consumers with the opportunity to visually test a destination within a digital environment, evaluate the spatial characteristics of the venue, and acquire an initial emotional and sensory impression before the actual travel takes place. Ultimately, by directly influencing tourists' decision-making mechanisms, VR instruments act as a catalyst that stimulates their travel motivation and behavioral intentions toward the real destination.

The fundamental objective of the presented research is to analyze the development trajectory and effectiveness of representing the tourism and recreational potential of the Ganja-Dashkasan economic-

geographical region in the global digital space through smart technologies, specifically virtual reality platforms. Concurrently, the primary priorities of the study comprise diagnosing the structural-functional problems arising during the integration of the smart tourism ecosystem in the region, as well as developing scientifically and theoretically grounded conceptual proposals and a strategic roadmap aimed at their elimination.

**LITERATURE REVIEW.** The rapid technological leap within the global tourism industry has catalyzed conceptual shifts in destination management and marketing strategies. As highlighted in the digital transformation reports of the World Tourism Organization (UNWTO, 2020–2025), the sectoral adoption of digital innovations constitutes a fundamental cornerstone for the resilience and sustainability of modern tourism ecosystems. In contemporary academic literature, this profound transformation is widely investigated under the paradigm of "smart tourism." Systematizing the foundational trajectories of this concept, Buhalis and Amaranggana (2014) define smart tourism destinations as platforms that exploit cutting-edge ICT infrastructures to maximize tourist experiences and enhance overall competitiveness. Similarly, Gretzel et al. (2015) argue that the core operational framework of smart tourism heavily relies on systematic data exchange and technological convergence. In this context, Xiang (2018) emphasizes the necessity of transitioning from traditional destination marketing to holistic "smart tourism ecosystems," placing the regional integration of digital instruments at the forefront of economic development.

Among the strategic components driving smart tourism, immersive technologies—specifically Virtual Reality (VR)—occupy a prominent position. Even during the earlier stages of digitalization, Guttentag (2010) identified the unique capabilities of VR applications in tourism planning and marketing, classifying it as a powerful catalyst to stimulate actual travel intentions. Furthermore, Tussyadiah and Fesenmaier (2009) illuminated how virtual environments mediate tourist experiences, effectively altering subjective spatial perceptions and destination images prior to visitation. These theoretical formulations align seamlessly with the classic behavioral framework established by Fishbein and Ajzen (1975) in their "Belief, Attitude, Intention, and Behavior" theory. Applied to tourism marketing, the initial sensory beliefs and positive attitudes generated within an immersive virtual environment serve as direct precursors that stimulate behavioral intentions to visit the physical destination.

From an empirical standpoint, Kim, Lee, and Preis (2016) demonstrated that high-quality VR experiences significantly impact destination image formation by inducing a strong sense of "psychological presence" in potential consumers. In their comprehensive state-of-the-art review, Beck, Rainoldi, and Egger (2019) evaluated the cross-functional applications of VR in tourism, asserting that immersive tools play an invaluable role as a "pre-vision" mechanism, particularly for promoting peripheral or underrepresented regional and ecotourism destinations.

Regarding regional tourism planning and sustainable expansion, Inskip (1991) and Hall (2008) maintain that maximizing a region's latent tourism potential is inherently contingent upon integrated planning processes and robust institutional frameworks. In the context of Azerbaijan, the empirical landscape of regional tourism reflects distinct dynamics. Reports by the Azerbaijan National Academy of Sciences (2022) indicate that while the Ganja-Dashkasan economic region possesses extraordinary recreational-landscape assets and cultural heritage, it faces certain institutional and infrastructural deficiencies. Recent data from the State Statistical Committee of the Republic of Azerbaijan (2024) further reveal that the digital adaptation of tourism infrastructure in the Ganja-Dashkasan region has not yet reached its optimal capacity. Addressing these challenges, the State Tourism Agency of the Republic of Azerbaijan (2023) highlights in its development reports that boosting the digital visibility of regional destinations through innovative marketing tools remains a high-priority strategic objective for the country's global competitiveness.

Consequently, a critical review of the existing literature reveals that while global research extensively covers the theoretical dimensions of smart tourism and VR, empirical frameworks tailored to the digital transformation of specific regional ecosystems in Azerbaijan—such as Ganja-Dashkasan—remain scarce. This research aims to bridge this apparent academic gap by constructing a

scientifically grounded, strategic roadmap for transforming the region's tourism potential into a thriving smart ecosystem.

**AIMS AND OBJECTIVES.** Evaluating the integration of digital transformations into regional tourism ecosystems is crucial for understanding how innovative technologies reshape destination management. This study aims to assess the tourism potential of the Ganja-Dashkasan region within the smart tourism paradigm, analyze the impact of immersive technologies on tourist decision-making, and propose a strategic roadmap to enhance the region's global competitiveness.

To achieve this aim, the following research objectives have been established:

1. To analyze the current structural state, infrastructure fragmentation, and seasonal dependency of the Ganja-Dashkasan tourism sector.
2. To evaluate the region's digital representation across global travel platforms and diagnose the causes of its weak online branding.
3. To examine the psychological mechanisms through which virtual reality, artificial intelligence, and mobile applications influence consumer behavior and stimulate real-travel motivation.
4. To formulate a conceptual "Smart Tourism Destination" model for the region, focusing on public-private partnerships and digital investment strategies.

**METHODS. Research Design.** This study employs a mixed-method research design integrating systemic approach, comparative analysis, and regional economic modeling to investigate the digital transformation of the regional tourism sector. The structural and functional dynamics of the destination are evaluated through qualitative and quantitative dimensions, utilizing a SWOT analysis framework to diagnose environmental factors, infrastructural gaps, and technological readiness. This design allows for a comprehensive theoretical and empirical assessment of transitioning traditional tourism assets into a unified Smart Tourism Destination model.

The sampling framework of this research is structured under two distinct categories to ensure empirical validity:

1. Geographical Sample: The spatial focus is strictly delimited to the Ganja-Dashkasan economic-geographic region, specifically analyzing Ganja city as a cultural-historical node and the Dashkasan area as a high-altitude ecotourism sub-unit.
2. Data and Literature Sample: The empirical dataset comprises official socioeconomic indicators from the State Statistical Committee of the Republic of Azerbaijan (2024), tourism development reports from the State Tourism Agency (2023), and a selected sample of peer-reviewed international academic literature focusing on smart tourism paradigms, consumer behavior, and immersive technologies.

**Methods.** The research employed the methods of regional economic modeling and comparative analysis to conduct a thorough assessment of the tourism and recreation potential, as well as the infrastructure dynamics of the Ganja-Dashkasan economic-geographic region. The systemic approach method made it possible to characterize the current state of the regional tourism ecosystem as a complete sub-system, evaluate its current digital representation level, and identify fundamental structural challenges such as the acute seasonal dependency of tourism and physical-technical infrastructure fragmentation. The application of the SWOT analysis method, based on quantitative and qualitative indicators, was aimed at diagnosing the region's internal potential, technological resource limitations, and institutional deficiencies. Furthermore, a theoretical-analytical substantiation and interpretation methodology was utilized to determine the functional correlation between the integration capabilities of innovative smart technologies (virtual reality, artificial intelligence, and mobile applications) and behavioral shifts in potential tourists' risk perception, emotional attachment, and decision-making mechanisms.

#### **RESULTS. Current Status and Main Challenges of the Ganja–Dashkasan Tourism Potential**

The Ganja–Dashkasan economic region is considered one of the vital tourism destinations within the western areas of the Republic of Azerbaijan, characterized by a rich natural resource base, favorable bioclimatic conditions, an ancient cultural-historical heritage, and polymorphic landscape features. The city of Ganja, regarded as the center of the region, promises a wide spectrum of

opportunities for the development of the cultural tourism industry owing to its deep-rooted urban planning traditions, unique architectural monuments, and the heritage of Nizami Ganjavi. On the other hand, the Dashkasan area, which constitutes the mountainous sub-unit of the macro-region, demonstrates a distinct uniqueness with its complex mountain relief, dense forest massifs, therapeutic mineral springs, and ecotourism potential. However, despite the existing recreational resources, the tourism potential of the territory has not yet been fully integrated into the economic cycle and has been unable to transition to a stage of systematic development [6].

Material-technical infrastructure provision is one of the fundamental factors determining the development level and competitiveness of regional tourism destinations. According to the principles of modern tourism economics, transport accessibility, modern accommodation facilities, the public service sphere, and the sophistication of the logistical management system directly influence the intensity and geography of tourist flows [6]. Although a functional international airport, railway mainlines, and a certain level of hotel industry exist in the regional center, the weak development of the transport-road network and accommodation-hospitality services in the mountainous section of the economic region significantly limits the realization of overall recreational opportunities. As a logical consequence, this existing disproportion causes the number of overnight stays (length of stay) of incoming tourists in the region to minimize and induces a decline in the overall satisfaction index within the service sphere.

According to scientific approaches related to tourism planning, sustainable development is ensured not merely by the presence of physical infrastructure, but also through the coordinated management of socio-economic systems [9, p. 45]. In the Ganja–Dashkasan region, however, tourism development bears a more fragmented character, and the lack of a unified strategic management model leads to the deepening of existing problems. In the long-term perspective, this factor may result in the weakening of the region's competitive advantages.

In the contemporary stage, the strategic functionality of digital technologies within the tourism industry has significantly intensified. According to the fundamental principles of the smart tourism paradigm, the competitiveness and recognition level of a destination in the international tourism market correlate with its level of representation on global digital platforms [3]. Social media resources, digital marketing tools, and interactive communication networks have acquired a decisive character in positioning tourism products in the international arena. Nevertheless, the existing empirical situation indicates that the recreational-tourism potential possessed by this economic region is represented at an unsatisfactory level within the international digital environment, and this disproportion delays the processes of the region's integration into the global tourism sub-system.

Virtual reality technologies act as an innovative visualization method in the tourism sector, creating opportunities to inform potential consumers about a destination both cognitively and emotionally prior to the actual travel. These conceptual tools are capable of directly influencing the decision-making mechanisms of tourists, thereby stimulating their motivation for real travel [8, p. 640]. Despite this, the non-implementation of VR-based representation models in the tourism sphere of the macro-region prevents optimal utilization of the existing innovative opportunities.

The acute seasonal character of tourism activity is one of the fundamental structural difficulties negatively affecting the sustainable development trajectory of a destination. In the high mountainous part of the economic region (particularly across the Dashkasan area), recreational activity reaches its maximum level primarily during the spring and summer quarters, whereas in the winter season, the intensity of tourist flows undergoes a sharp deceleration [9, p. 60]. This situation generates instability trends in the regional economy and restricts the continuous development vector of the tourism ecosystem. In accordance with the sustainable tourism concept, minimizing the degree of seasonal dependency is recognized as one of the most crucial prerequisites for ensuring macroeconomic stability and sectoral efficiency [9, p. 62].

The weak development dynamics of diversified alternative tourism segments is also among the main factors deepening the existing structural deficiencies. Specifically, the low level of institutional formation in winter tourism, health-resort, and ecotourism fields diminishes the region's prospects of

transforming into a four-season functioning destination. As a logical consequence, the inflow trajectory of sectoral revenues assumes an uneven character, and the overall economic efficiency index declines. Scientific research proves that virtual reality architecture exerts a positive multiplicative effect on stimulating actual travel decisions by strengthening emotional attachment to a place among consumers; however, the practical application of these technologies has still not been realized in the current tourism management of the region.

Management and coordination issues also hold substantial importance in the development of the tourism sector. The effective functioning of smart tourism ecosystems requires the formation of an integrated cooperation model between the public and private sectors [6]. However, these cooperation mechanisms have not fully developed in the region, and investment attractiveness has not reached a sufficiently high level. The data of the State Tourism Agency of the Republic of Azerbaijan also notes the existence of serious disparities between regions in terms of the development level of tourism infrastructure [2].

Although certain development indicators are observed in Ganja city, the weakness of the service sector, the limited number of tourism facilities, and low investor interest in the Dashkasan district negatively affect the overall tourism development of the region. In smart tourism approaches, the implementation of technological innovations is evaluated among the primary factors strengthening the international competitiveness of regions [5]. The insufficient application of tools such as mobile applications, interactive maps, and digital platforms restricts the visibility of the region in the international tourism market .

#### **Application Opportunities and Limitations of Virtual Reality Technologies in the Tourism Field**

The acceleration of the digital transformation process has led to the emergence of new technological approaches within the tourism industry. Among these innovations, virtual reality (VR) technologies have acquired particular importance and have transformed into one of the innovative tools in the presentation of tourism services. Virtual reality enables users to observe a specific location in a three-dimensional and interactive format without physical presence. Within the tourism sector, this technology is utilized primarily for the purpose of presenting destinations, optimizing advertising strategies, and generating tourist interest. Scientific research indicates that the initial experience acquired in a virtual environment exerts a positive influence on the decision-making process of potential tourists, thereby increasing the probability of actual travel [8, p. 640].

One of the most widespread application areas of virtual reality in tourism is digital tours and virtual excursions. Through this approach, historical monuments, museums, natural landscapes, and other tourism objects are presented to users in a digital format. Such systems create more accessible tourism opportunities, particularly for individuals living at a distance and users with physical disabilities. Furthermore, virtual excursions support the promotion of destinations to an international audience and enhance their visibility in the global tourism market. According to research results, the emotional attachment formed within the virtual environment is considered one of the primary factors strengthening users' interest in actual travel [11, p. 762].

The role of virtual reality technologies has also significantly increased in modern tourism marketing. Within the smart tourism model, the digital presentation quality of a destination is evaluated as a factor directly influencing its international competitiveness [5]. Through virtual reality, hotels, recreation centers, and tourism routes are presented to users in a more realistic format. This not only facilitates the selection process for potential tourists but also accelerates their decision-making period.

Virtual reality technologies also possess extensive capabilities in terms of generating personalized tourism services. By virtually experiencing various routes and services in advance, users can make selections tailored to their specific interests and needs. This feature facilitates a more effective organization of customized tourism planning. Nevertheless, the high-level functioning of such systems necessitates the availability of an advanced technological infrastructure and stable digital platforms.

One of the most significant benefits offered by virtual reality solutions in the tourism field is the minimization of risk factors that travelers might encounter. Since tourists can preview their destination in a digital environment prior to departure, discrepancies between actual impressions and initial expectations are eliminated. Furthermore, the long-term exploitation of the created digital content establishes a basis for saving promotional budgets and structuring marketing strategies more effectively.

On the other hand, the integration of the aforementioned technological systems also brings forth certain challenges. One of the primary obstacles encountered is that virtual platforms demand substantial costs and a rigorous technical foundation. The production of effective virtual reality content requires the existence of modern equipment, specialized software, and qualified human resource potential. This situation, particularly in peripheral zones and tourism regions with limited economic resources, delays the adoption of such innovations.

Issues related to the physical comfort of users are also among the current challenges. Prolonged utilization of the respective devices can lead to negative effects in some individuals, such as inner ear discomfort, visual fatigue, and eye strain. These mentioned elements are recognized as one of the primary factors hindering the continuous and mass application of these systems [8, p. 645].

Simultaneously, the digital environment is incapable of entirely replacing the actual travel experience. The socio-cultural communication that occurs during live trips, the direct perception of the local atmosphere, and emotional bonds cannot be transmitted with the same precision in the virtual realm. For this reason, rather than being an independent tourism product, VR technologies function as an auxiliary tool that enriches and complements existing tourism activities.

Another limitation manifesting itself in the aforementioned field is that the infrastructure is not equally accessible to everyone. The inability of all consumers to possess the relevant technical devices deepens digital inequality. Consequently, a serious imbalance forms between groups capable of utilizing modern technological opportunities and those deprived of these resources.

In addition, the regular updating of virtual reality content is considered a crucial matter. In accordance with the changes occurring at tourism facilities, digital presentations must also be updated. Otherwise, the provision of obsolete information may negatively affect user satisfaction and diminish the effectiveness of the technology.

Despite the existing limitations, the prospects for implementing virtual reality technologies in the tourism sector are evaluated as quite extensive. Particularly, as a result of integration with artificial intelligence, big data analytics, and interactive digital systems, the formation of more agile and user-oriented tourism models is possible [6]. In the future, this approach may exert a significant influence on the development of innovative management mechanisms and competitive service models within the tourism industry.

**Low Digital Visibility of Regional Tourism: Causes and Consequences.** In the modern tourism industry, the digital environment holds a decisive importance in terms of destination recognition and the formation of tourist flows. Since internet resources, social networks, and online platforms directly influence tourists' travel choices, regions with a weak presence in the digital sphere lag behind in international competition. Given that the majority of tourists acquire information primarily through digital sources during travel planning, low online visibility hinders the full realization of the region's tourism potential [5, p. 3–5].

One of the primary causes of weak digital visibility is the lack of systematic organization in tourism marketing. For effective promotion in the modern tourism market, social media management, search engine optimization, and a content strategy tailored to the target audience are of particular importance. However, as these activities are not implemented based on a unified plan in many regions, the dissemination of information assumes a fragmented character, and the tourism product is not presented correctly [14, p. 112–115].

Another crucial dimension of the problem is the insufficient formation of the region's tourism brand. A tourism brand is considered one of the core elements that defines a region's image, distinctive features, and market competitive advantages. Destinations lacking a strong and recognizable brand

experience difficulties in attracting attention within the international tourism market. This situation hinders the effective communication of the Ganja–Dashkasan region's tourism opportunities to a broad audience [5, p. 6–7].

One of the factors contributing to weak digital visibility is the low level of activity on international tourism platforms. In modern tourist behavior, platforms such as Booking, TripAdvisor, and Google Travel serve as vital sources of information and choice. The limited representation of regional tourism facilities on these platforms complicates their integration into the global tourism system and leads to a reduction in the potential tourist audience [14, p. 118].

The limitation of technological resources is also among the primary factors deepening the existing problems. In modern tourism marketing, high-quality photo and video materials, virtual presentations, interactive maps, and digital advertising tools hold special importance. However, limited financial and technical capabilities in many regions complicate the preparation of such digital content.

Weak digital visibility, first and foremost, leads to a reduction in tourist flows. Since modern tourists largely base their travel decisions on information obtained from the internet, regions that are insufficiently presented in the online environment attract less attention [5, p. 8]. This, in turn, results in a decrease in tourism revenues and weakens the development pace of the regional economy.

Another consequence of this problem is the decline in investment attractiveness. When evaluating tourism destinations, investors take into account their level of digital recognition, online reputation, and brand strength. Regions that are poorly presented from a digital perspective are perceived as high-risk investment zones, which consequently delays the implementation of infrastructure projects.

Furthermore, a passive presence in the digital environment weakens the region's integration into the international tourism network. Destinations that are inactive on global platforms remain excluded from international tourism routes and cannot fully realize their long-term development opportunities.

Scientific approaches demonstrate that digital visibility is not merely a technological matter, but is also strictly related to strategic management and an effective brand policy. Within the smart tourism concept, a robust presence on digital platforms is considered one of the core factors ensuring the sustainable development of a destination [5, p. 10–11]. Therefore, the application of innovative digital solutions and the formulation of a unified marketing strategy hold vital importance for enhancing the competitiveness of regions [4].

#### Transition to the Smart Tourism Model: Innovative Solutions for the Western Tourism Region

The smart tourism model is considered one of the primary directions of digital transformation within the modern tourism industry. This approach is based on the integration of information and communication technologies, big data analytics, artificial intelligence systems, and mobile technologies into tourism services. Consequently, a more precise analysis of tourist behavior becomes possible, service quality increases, and destination management is executed in a more agile manner [5, p. 2–4].

In the western region, which possesses rich natural and cultural tourism resources, the transition to the smart tourism model holds particular relevance. Since the existing infrastructure deficiencies and promotional challenges in the region cannot be fully resolved through traditional methods, digital technologies come to the forefront as an alternative means of development. The smart tourism approach carries strategic importance in terms of strengthening the competitive advantage of the regional tourism destination in both domestic and international markets.

One of the core components of the smart tourism system is mobile applications. These platforms provide tourists with functions such as route planning, accommodation and transport reservations, information acquisition about tourism facilities, mapping services, and real-time notifications through a unified system. Such technologies facilitate the decision-making process of tourists and enable them to navigate more comfortably within the region. Simultaneously, it becomes possible to collect data on user behavior via mobile applications, which plays a crucial role in the formulation of future marketing strategies [5, p. 6–8].

The utilization of mobile applications is considered particularly vital in the studied economic-geographical region. The existence of information scarcity and coordination problems in the area complicates the operative and accurate acquisition of data by tourists. Mobile platforms can partially eliminate this gap, serving as a unified information system for tourists. In addition, the integration of hotels, restaurants, and other service enterprises into the digital ecosystem can expand the operational capabilities of local business entities.

One of the technologies occupying a significant place in the smart tourism model is virtual reality (VR) systems. Such tours create opportunities for tourists to visually and emotionally familiarize themselves with a destination prior to travel. This technology diminishes the perception of risk among tourists, heightens interest, and exerts a positive influence on the formation of actual travel decisions. Concurrently, virtual reality functions as a powerful visual presentation tool in tourism marketing [11, p. 761–764].

The implementation of VR technologies in the western tourism region possesses broad prospects. The presentation of historical-cultural monuments, the heritage of Nizami Ganjavi, the natural landscapes surrounding Lake Goygol, and mountainous territories in a virtual format can establish conditions for the region to appear more attractive on international platforms. This, in turn, can positively influence the growth of tourist interest and tourist flows.

Another crucial component of the smart tourism model is artificial intelligence-based guiding systems. AI technologies enable the provision of personalized services to tourists. Through chatbot systems, users can obtain information at any time of the day, familiarize themselves with route suggestions, and receive prompt support regarding services. Along with this, artificial intelligence systems hold substantial importance in terms of managing tourist flows and conducting statistical analyses [14, p. 118–121].

The application of artificial intelligence-based solutions in the region can facilitate the elevation of service quality. Constructing customized routes aligned with tourists' fields of interest, managing congestion, and implementing real-time information systems allow for a higher quality organization of the tourism experience [7].

The transition to the smart tourism model is also strictly interconnected with the "smart city" concept. Within the framework of this approach, transport infrastructure, information flows, the service sector, and tourism facilities operate within a unified digital system. Such an integration forms a more comfortable and functional environment for tourists [12].

Nevertheless, the implementation of smart tourism systems is accompanied by certain challenges. One of the primary problems is the insufficient development of the technological infrastructure. The effective functioning of modern digital services demands high-speed internet, contemporary server systems, and advanced software. The incomplete formation of these capabilities in the region is considered one of the main factors delaying the implementation process.

Another critical matter relates to the limitation of financial resources. Since the realization of smart tourism projects requires a high volume of investment, this situation creates an additional economic burden for local management structures [13].

The low level of digital literacy is also among the fundamental problems impacting the implementation process. The adaptation of local tourism enterprises and service providers to new technologies requires a certain preparation and training process. Otherwise, it becomes impossible to fully utilize the capabilities of digital systems.

Furthermore, data security and the protection of personal information demand special attention in smart tourism systems. Because a large volume of data is gathered on digital platforms, protecting that information securely holds vital importance.

Despite the existing challenges, the smart tourism model is evaluated as one of the strategic directions regarding the long-term development prospects of the region. The implementation of this approach can make a significant contribution to utilizing tourism potential more efficiently, expanding investment opportunities, and strengthening competitiveness in the international tourism market.

The Mechanism of Transition from Virtual Reality to Actual Travel: Stimulating Tourist Behavior

The application of virtual reality (VR) technologies in the tourism sector does not merely serve as a medium for information presentation; it functions as a vital psychological tool influencing the behavior and decision-making processes of potential tourists. Modern tourism theories explain the formation of travel decisions based on the interplay of emotional, social, and cognitive factors. In this context, VR technologies can accelerate the emergence of an actual travel decision by shaping the initial perceptions of tourists.

Virtual reality enables users to observe a destination in a digital environment and acquire a "pre-experience" before visiting it physically. This initial experience facilitates the formation of tourist expectations and reduces feelings of uncertainty. Scientific approaches to tourist behavior indicate that the reduction of risk perception plays a crucial role in travel decision-making. When the visual appearance, atmosphere, and sensory elements of a location are presented via VR, tourists can conceptualize the destination more realistically, thereby increasing the likelihood of decision-making.

From the perspective of decision-making psychology, the influence of VR technologies is fundamentally based on principles of emotional stimulation. The human brain has the capability to perceive visual signals from a digital environment as a real-life experience to a certain extent. Consequently, a psychological bond forms between the user and the target destination. When a traveler "feels" a destination beforehand through virtual excursions, sympathy and interest toward the region are awakened, which stimulates the final decision to undertake an actual trip.

Another strategic importance of such interactive systems relates to building initial trust among consumers. When travelers digitally observe the geography they intend to visit, they gather comprehensive data on safety, service levels, and general conditions to reach a definitive decision. Within the framework of behavioral economics, this phenomenon is characterized as the mitigation of risk factors, which significantly increases the chance of a tourist favoring the respective location.

In smart tourism approaches, VR solutions act as an effective promotional mechanism. Showcasing tourism spots via digital tours on a global scale enhances their competitiveness in the international market and operatively attracts the attention of potential customers. Specifically, the implementation of digital visualization in the western tourism area of the country can create favorable conditions for promoting both the historical-cultural heritage and the geographical riches of the region to broader audiences.

One of the fundamental mechanisms stimulating actual travel motivation is the phenomenon of "immersion," which is the individual's full psychological integration into the digital environment. As the degree of this presence intensifies, users feel as though they are in the location in real-time. This state reinforces the emotional bonds of the traveler with the target destination, shaping the desire to embark on an actual trip.

Furthermore, the socio-cultural influence of three-dimensional simulation systems is quite extensive. Consumers can direct others' attention to a geography by sharing the impressions they gain during interactive tours on virtual networks. As a result, a modern wave of electronic word-of-mouth (e-WOM) marketing emerges in the digital space, which positively influences the dynamics of tourist flows toward the region.

However, the impact of interactive digital platforms on mass behavioral scenarios is not always unidirectional or positive. In some situations, individuals may abandon actual travel plans because they find the digital experience entirely satisfactory and sufficient. This tendency, known in tourism science as the "substitution effect," is considered a relevant risk factor for the sector.

Within the psychology of decision-making, virtual reality influences both cognitive and affective sensors in parallel. On the cognitive level, travelers gather necessary data, compare alternatives, and categorize their choices. On the emotional level, visual and sensory elements awaken a specific affinity toward the destination. The synergy of these two mechanisms plays a decisive role in shaping the final travel decision.

Scientific research proves that virtual technologies yield more effective results in branding less popular or newly emerging tourism destinations. This is because the level of uncertainty and hesitation in the minds of tourists toward such regions is higher. The virtual environment minimizes these psychological barriers, weakens individual fears, and transforms the stimulus to engage in actual travel into an internal necessity.

**Sustainable Smart Tourism Strategy and Proposals for Regional Development.** A sustainable smart tourism strategy is considered an approach in modern tourism management based on the parallel provision of economic development, ecological balance, and social welfare. This model aims not only to increase the number of tourists but also to ensure the long-term and sustainable development of the region. Within the framework of the smart tourism concept, digital technologies, data analytics, and innovative management methods are evaluated as key tools that strengthen the competitiveness of destinations [5, s. 2–4].

Developing a sustainable smart tourism strategy for the western tourism region, which possesses extensive potential but faces certain structural challenges, is of particular importance. Although the region features rich natural resources, historical-cultural heritage, and a favorable geographical position, a systematic and coordinated approach is required to transform these resources into economic value. In this regard, establishing effective cooperation between the public and private sectors is considered a primary development mechanism.

Public-private partnership plays a crucial role in expanding tourism infrastructure, implementing investment projects, and improving service quality. While public institutions ensure the formation of a legal and institutional environment, the private sector contributes to the process through innovation opportunities, financial resources, and agile management mechanisms. Without the mutual integration of these two directions, the full implementation of the smart tourism model becomes difficult [14, s. 118–120].

Strengthening public-private sector cooperation in the studied region can create conditions for forming new projects in fields such as hospitality, transport, digital services, and ecotourism. In particular, creating transparent management mechanisms and implementing economic stimulus tools are of significant importance for increasing the interest of local and foreign investors.

One of the main directions of the sustainable smart tourism strategy is the expansion of digital investments. These investments encompass the development of mobile applications, the implementation of virtual and augmented reality technologies, the establishment of online platforms, and the creation of data-driven management systems. Investments directed toward digital technologies increase the accessibility of tourism services and management efficiency.

The application of digital solutions also positively impacts the strengthening of the region's visibility in the international tourism market. Through interactive platforms and virtual tours, the natural and cultural potential of the region can be presented to a global audience in a more effective format. This can create conditions for an increase in tourist flows and the expansion of economic activity.

Developing the ecotourism direction is considered one of the important components of sustainable tourism policy. Ecotourism supports the socio-economic development of local communities while ensuring the protection of the natural environment. Particularly in mountainous areas and territories with rich natural resources, the development of ecotourism holds great importance in terms of diversifying the regional economy. This approach ensures that tourism activities are carried out with minimal impact on the environment [9, s. 60–62].

The integration of ecotourism with smart technologies allows for achieving more effective results. For instance, digital maps, smart route systems, and mobile guide applications ensure that tourists navigate natural areas in a safer and more controlled manner. This prevents damage to the ecological environment and ensures the sustainability of natural resources.

**DISCUSSION.** The implementation of a sustainable smart tourism strategy in the western tourism region of Azerbaijan is a multifaceted approach of strategic importance for the region's economic development, preservation of ecological balance, and enhancement of social welfare. This

model goes beyond mere quantitative indicators and is based on innovative management methods that target the region's long-term and sustainable development. In this context, digital technologies and data analytics are the primary strategic tools that enhance the competitiveness of destinations.

The rich natural resources, historical-cultural heritage, and favorable geographical location of Azerbaijan's western region require systematic and coordinated management. Establishing effective cooperation between the public and private sectors is a fundamental development mechanism in the process of converting these resources into economic value. Unless the legal and institutional environment created by public institutions is integrated with the private sector's innovation opportunities, financial resources, and agile management mechanisms, the full implementation of the smart tourism model remains impossible.

Two primary directions play a critical role in ensuring sustainable development in the region:

1. Expansion of digital investments: Mobile applications, virtual and augmented reality technologies, as well as data-driven management systems increase the accessibility of tourism services and management efficiency.
2. Optimization of ecotourism: Especially in the mountainous and resource-rich areas of Azerbaijan's western region, the development of ecotourism contributes to the diversification of the regional economy and ensures that tourism activities have a minimal impact on the environment.

The integration of smart technologies (such as digital maps, intelligent route systems, and mobile guides) with ecotourism ensures that tourists navigate natural areas in a more controlled and safe manner. This synergy prevents damage to the ecological environment and ensures the sustainability of natural resources. Consequently, the transformation of Azerbaijan's western region into an attractive destination in the global tourism market depends directly on the application of transparent management mechanisms and the creation of economic incentives for local and foreign investors.

**Conclusions.** Research and scientific-empirical analyses indicate that intensifying digital transformation processes within the tourism industry of the Ganja-Dashkasan economic-geographical region is of exceptional importance for ensuring the sustainable development of the regional economy. The complex integration of virtual reality, artificial intelligence, and mobile technologies into presentation and service processes serves as a fundamental catalyst, enhancing the region's competitiveness in global tourism markets. The application of digital innovations within the context of behavioral psychology not only minimizes the risk perception of potential tourists but also fosters initial emotional trust toward the destination, thereby activating the transfer mechanism from virtual experience to real travel decisions.

Overcoming the challenges of infrastructure fragmentation, weak online visibility, and acute seasonal dependency identified in the region is possible not merely through traditional methods, but through the establishment of a unified Smart Tourism Destination model, the strengthening of institutional foundations for public-private partnerships, and the increase of investments in digital infrastructure. Ultimately, shaping the smart future of the Ganja-Dashkasan region through the synergy of rich historical-cultural heritage and unique ecotourism resources within a digital ecosystem will create the foundation for the region to transform into an internationally recognized center of intellectual tourism in the near future.

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