

The role of virtual tourism in overcoming the structural constraints of traditional tourism in Algeria

دور السياحة الافتراضية في تجاوز القيود الهيكلية للسياحة التقليدية في الجزائر

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Abstract:

This study investigates how virtual tourism could contribute to Algeria's traditional tourism industry growing by removing structural barriers. It emphasizes the potential of digital technologies and innovation to provide immersive tourism experiences. The research highlights how virtual tourism can renovate and modernize the tourism industry by addressing challenges related to infrastructure, accessibility to sites, and insufficient promotion. The study focuses on innovation and advanced technology as fundamental pillars of virtual tourism, highlighting emerging models in virtual reality and their significance in preserving cultural heritage and boosting tourism appeal. It examines "Ahkili Casbah 3D," a pioneering Algerian project, as a leading example in this field and discusses prospects for scaling such initiatives. Additionally, the study addresses various challenges associated with the widespread adoption of virtual tourism and presents recommendations regarding the roles of government and the private sector in supporting this approach to achieve a positive and sustainable impact on the national economy as a whole, and the tourism industry in particular.

Keywords: Virtual tourism, Virtual reality technology, Tourism innovation, Digital transformation, Structural constraints in tourism.

JEL Classification Codes : O30, Z30, L83, L86, R58

ملخص:

تقوم هذه الدراسة بالتحقيق في كيفية مساهمة السياحة الافتراضية في نمو صناعة السياحة التقليدية في الجزائر من خلال إزالة الحواجز الهيكلية. إنها تركز على الإمكانيات التي توفرها التقنيات الرقمية والابتكار لتقديم تجارب سياحية غامرة. تسلط الدراسة الضوء على كيف يمكن للسياحة الافتراضية أن تُجَدِّد وتُحدِّث صناعة السياحة من خلال معالجة التحديات المتعلقة بالبنية التحتية، إمكانية الوصول إلى المواقع، ونقص الترويج الكافي، حيث تركز الدراسة على الابتكار والتكنولوجيا المتقدمة كركائز أساسية للسياحة الافتراضية، مع إبراز النماذج الناشئة في الواقع الافتراضي وأهميتها في الحفاظ على التراث الثقافي وتعزيز الجاذبية السياحية. كما تفحص الدراسة مشروع "أحكيلي القسبة D3"، كمثال رائد في هذا المجال، وتناقش آفاق توسيع مثل هذه المبادرات.

بالإضافة إلى ذلك، تتناول الدراسة التحديات المتنوعة المرتبطة بالاعتماد الواسع للسياحة الافتراضية، وتعرض توصيات حول أدوار الحكومة والقطاع الخاص في دعم هذا التوجه من أجل تحقيق تأثير إيجابي ومستدام على الاقتصاد الوطني بشكل عام، وعلى صناعة السياحة بشكل خاص.

كلمات مفتاحية: السياحة الافتراضية، تكنولوجيا الواقع الافتراضي، الابتكار السياحي، التحول الرقمي، القيود الهيكلية في السياحة.

تصنيفات JEL : O30, Z30, L83, L86, R58

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INTRODUCTION:

Traditional tourism in Algeria faces several structural constraints, including issues with infrastructure, lack of promotion, and difficulty accessing certain destinations. These challenges limit its ability to compete regionally and internationally. With the rapid advancement of digital technologies, virtual tourism has emerged as an innovative solution to overcome these obstacles. It offers immersive experiences that allow visitors to explore tourist sites remotely using virtual reality (VR) technologies and interactive digital platforms.

Virtual tourism is an emerging field that relies on a knowledge-based economy and technological innovation. It combines digital creativity with the tourism industry to create more engaging and diverse experiences. Local initiatives, such as the "Ahkili Casbah 3D" project, have begun to display the significant potential of this approach by presenting cultural and historical heritage in a modern and interactive manner.

Building on this context, this study aims to analyze the role virtual tourism can play in addressing the structural challenges of traditional tourism in Algeria. It reviews local and international experiences, discusses success factors and challenges, and explores opportunities for collaboration between the public and private sectors to support this future-oriented way.

Research Problem:

To what extent can virtual tourism help address the structural challenges that limit the development of traditional tourism in Algeria? What strategies can be implemented to enhance and expand its impact on the national tourism sector?

Research Hypotheses:

- Virtual reality technologies can help overcome challenges related to infrastructure and limited access to certain tourist sites.
- Virtual tourism offers an effective tool for promoting Algerian destinations both locally and internationally through innovative and immersive experiences.
- Virtual tourism can increase the interest of potential tourists and encourage them to make actual visits, positively influencing the development of tourism products.
- Support from the government and private sector is essential to activate and sustain virtual tourism as a developmental tool in the tourism sector.

Objectives and Aims of the study:

- Analyze the role of virtual tourism in addressing the structural challenges faced by traditional tourism in Algeria.
- Illustrate how modern technology and innovation can be harnessed to offer new and appealing tourism experiences.
- Highlight the contribution of virtual tourism in preserving heritage and enhancing tourism attractiveness.
- Display practical examples of virtual initiatives, with a focus on the "Tell Me About Casbah 3D" project.
- Discuss the challenges associated with adopting virtual tourism in the Algerian context.
- Propose ways to strengthen collaboration between public and private stakeholders to support this approach.

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- Assess the potential economic and social impact of virtual tourism in the medium and long term.

Research Methodology:

The study adopts a descriptive-analytical approach by reviewing literature related to virtual tourism and tourism innovation, analyzing real-world experiences and both local and international models. Additionally, qualitative research tools are employed to interpret data and derive conclusions, while practical recommendations are proposed to enhance the role of virtual tourism in overcoming obstacles that hinder the development of the traditional tourism industry in Algeria.

1. Structural Constraints of the Tourism Industry in Algeria

The Algerian tourism industry faces several structural constraints that hinder its development and contribution to the national economy. These limitations include challenges related to infrastructure, planning, promotion, and investment.

1.2. Weak Tourism Infrastructure

Algeria suffers from a lack of essential facilities to support tourism activities, such as hotels, resorts, transportation, and recreational amenities. This deficiency limits the country's ability to accommodate tourists and meet their expectations. According to statistics from the Ministry of Tourism and Traditional Industries, the number of available hotel beds is still insufficient compared to potential demand (Lazhar, 2018).

1.3. Tourism Planning and Management

Although Algeria has developed the Tourism Development Master Plan. Horizon 2030, aimed at enhancing the sector through various strategies, its implementation faces challenges such as inter-sectoral coordination, financial resource allocation, and project monitoring (Tourism Development Master Plan: Horizon 2030, 2025).

1.4. Lack of Tourism Promotion and Marketing

Algeria struggles with weak international promotion of its tourist destinations. This marketing deficiency results in foreign tourists' limited awareness of the country's diverse tourism potential, thus reducing visitor numbers.

1.5. Investment and Real Estate Constraints

The tourism sector faces investment-related challenges, including difficulties in acquiring suitable land for tourism projects, bureaucratic complexities, and the lack of incentives for investors. Additionally, some designated tourism expansion areas still lack approved development plans.

1.6. Shortage of Qualified Human Resources

There is a noticeable shortage of trained and qualified personnel in the tourism industry, affecting the quality of services provided to visitors. Addressing this gap requires specialized training programs to meet market demands.

1.7. Security Challenges and Perceived Image

Algeria has experienced periods of instability that have negatively affected its reputation as a safe tourist destination. Despite significant improvements in security conditions, restoring trust and attracting tourists necessitate continuous efforts in improving the country's global image.

1.8. Weak Cross-Sector Coordination

Tourism development requires effective coordination between various sectors, such as transportation, culture, and the environment. The absence of such coordination leads to the implementation of conflicting or non-integrated policies, obstructing sustainable tourism growth (A, 2014).

2.The Concept of Virtual Reality Technology

The concept of virtual reality (VR) emerged as a tangible technological advancement rooted in scientific exploration and invention during the mid-20th century. One of its early influencers was British author Arthur C. Clarke, who envisioned, in his book "Profiles of the Future" a future where people could connect and hold meetings virtually via advanced electronic devices.

Since then, electronic systems have evolved significantly, offering increasingly realistic and interactive experiences. This led to the formal introduction of the term "Virtual Reality" (VR) in 1989, followed by related concepts such as "Cyberspace" and "Virtual Worlds".

In 1994, VR technology was first used for a historical tourism experience at Dudley Castle in England. This project provided visitors with a three-dimensional tour based on images dating back to 1555. British engineer Colin Johnson developed this system using 3D models, integrating various sources, such as photographs, videos, historical texts, and narratives. This initiative marked the first attempt to utilize VR as a tool for immersive educational and cultural tourism experiences (Laila D., 2022).

The term "Virtual" refers to a non-traditional form of communities built on information and communication technology, unconstrained by physical and temporal limitations (Mowshowitz, 1994).

VR technology enables users to interact with computer-generated 3D environments, delivering immersive experiences beyond physical boundaries (Rubin, 2020). The system relies on VR headsets equipped with motion sensors, allowing users to navigate virtual spaces realistically (Jensen, 2019). VR applications span various industries, including gaming, education, medicine, and tourism marketing (Smith & Jones, B., 2018).

3.Virtual Reality Institutions in Tourism

Virtual tourism offers the opportunity to explore destinations without physically traveling. While this concept may seem counterintuitive—since tourism traditionally involves physical movement—it has sparked curiosity about its market viability. Global VR tourism market size is projected to reach \$24.1 billion by 2027.

VR has already been successfully utilized in tourism, with notable examples including travel inspiration and virtual events. Virtual spaces allow consumers to explore accommodations, landmarks, and experiences before booking their trips. A 2022 survey revealed that 53% of U.S. respondents expected VR planning to enhance travel experiences.

At the same time, the COVID-19 pandemic significantly boosted virtual concerts, art exhibitions, and corporate events.

Despite uncertainties about consumer adoption, certain VR tourism elements are gaining traction. For instance, a 2022 survey found that Gen Z respondents from the U.S. and UK were most interested in exploring new cities or countries through VR. Meanwhile, older

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adults in the U.S. (aged 55+) favored VR concerts and entertainment, with 41% expressing interest (Statista, 2024).

Key global VR tourism applications include:(Dingman, 2024)

- **Wander:** Uses Google Street View for virtual city exploration.
- **National Geographic Explore VR:** Offers interactive expeditions to Antarctica and historic sites.
- **The Blue:** Delivers underwater exploration experiences featuring whales and marine life.
- **Traveling While Black:** An interactive documentary on U.S. travel challenges.
- **Gala360:** Provides 360° virtual tours of landmarks like: Taj Mahal and Egyptian Pyramids.
- **BRINK Traveler:** Offers VR tours to natural wonders like "Grand Canyon".
- **Sphere:** Enables live VR music festival experiences.
- **Wanderlust: Travel Stories:** A narrative-driven interactive VR travel game.
- **YouTube VR:** Streams 360° videos of global destinations.
- **Alcove:** Supports group virtual travel experiences.

4. Role of Startups in Virtual Tourism Development

Through the previous elements related to startups and virtual tourism, the role of startups in developing virtual tourism can be outlined as follows:

Startups play a crucial role in developing virtual tourism by innovating immersive tourism experiences. For example, previously mentioned companies created VR applications enabling users to visit famous landmarks virtually, enhancing tourism promotion and visitor engagement.

To understand the importance of the role of startups in virtual tourism, successful international case studies can be examined, including:

- **Dubai, UAE:** Leveraged VR technology for innovative tourism marketing (Al-Ali, 2020).
- **France:** Effectively used VR tourism to promote attractions such as the Eiffel Tower and the Louvre (Dupont, 2018).

5. The Importance of Virtual Tourism (Laila, 2022)

- Preserves tourist sites vulnerable to deterioration.
- Expands global tourism market share through digital promotion.
- Reduces marketing costs compared to traditional methods.
- Enhances interactive site promotion using VR technologies.
- Protects historical landmarks and architectural heritage.
- Optimizes travel booking via augmented reality, reducing cancellations (Global Data Report). Augmented reality is used to enhance the booking experience, enabling travelers to visualize hotels and rooms before making a reservation, which helps reduce last-minute cancellations.

6. Challenges and Solutions

Despite virtual tourism's potential, startups face obstacles such as high technology costs and difficulties in delivering realistic VR experiences. However, these challenges can be

mitigated through public-private sector collaboration and financial support for VR development (Ahmed & Saleh R., 2019).

Table (1): Challenges and Solutions for Tourism Startups Adopting Virtual Reality Applications Virtual Tourism in Algeria

<i>solutions</i>	<i>challenges</i>
This challenge can be overcome by obtaining financial support from the government and large companies, as well as seeking international partnerships.	High cost of technology
Developers need to provide realistic experiences for users, and this can be achieved by investing in advanced technologies and continuous training for technical teams.	Technical challenges

Source: Prepared by the researcher based on (Ahmed and Saleh, R, 2019)

7. Virtual tourism in Algeria:

Algeria is among the countries endowed with unique tourist assets, yet it requires effective strategies to market these offerings. Emerging enterprises in the virtual tourism sector can play a critical role in promoting Algeria's tourist destinations by developing applications and platforms that allow tourists to explore historical and natural sites virtually, thereby enhancing Algeria's appeal as a tourist destination (Harbi, 2021).

Virtual tourism serves as an ideal tool to attract tourists by enabling prospective travelers to explore Algerian tourist destinations virtually before visiting the sites in person (Shabaan and Haddad, R, 2021).

7.1 Examples of Algerian Startup Enterprises in Virtual Reality Tourism:

7.1.1 Ahkil li Casbah 3D: (Baraka News, 2024) is an innovative project aimed at reviving the history of the Algerian Casbah using 3D virtual reality technologies. Launched by Esraa Media Foundation in collaboration with the National Office for Cultural Property Management, the virtual museum is located at the Martyrs' Square metro station in Algiers. It offers an interactive experience combining education and entertainment and is Algeria's first museum promoting tourism through virtual reality. The project consists of several elements through which we can better understand how it works, the points that distinguish it, and may make the consumer want to undergo this experience.

Interactive Experience:

Interactive Storytelling: Virtual tours narrated by historical characters, creating an immersive experience for visitors.

Historical Documents: Based on reliable sources from the National Office for Cultural Property Management, ensuring the accuracy of information provided.

Virtual Tours: Enable exploration of various historic sites within the Casbah, such as old houses, markets, and archaeological buildings, in an interactive 3D manner.

Benefits and Future Expansion:

Cultural Identity Enhancement: Strengthens Algerians' connection to their heritage and national identity.

Tourist Attraction: Offers a unique tourist experience that attracts to local and foreign visitors.

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Future Expansion: Plans are in place to extend the scope to include other heritage sites in Algeria and develop new content featuring the history of different regions. **Estimated Field Study:**

Table (2): SWOT Analysis

Audience	Estimated Monthly Virtual Visitors	Preliminary Satisfaction Rate
Students	1,800	92%
Foreign Tourists	950	85%
Algerian Citizens	1,200	89%

Source: (Baraka News, 2024)

Technical Challenges: High costs associated with developing and maintaining 3D and virtual reality technologies.

Awareness Challenges: Significant marketing efforts are required to highlight the project's importance and attract more visitors.

Challenges and Prospects for Development

Challenges:

- **Technical:** Internet access limitations in remote areas.
- **Financial:** Low investment in the creative cultural sector.
- **Marketing:** Need for strong digital marketing strategies.

Prospects:

- Integrating AR technologies for in-field visits.
- Developing a multilingual mobile app for wider reach.
- Collaborating with universities to enrich educational content.
- Digitizing other heritage sites (e.g., Timgad, Djémila, Casbah of Constantine).

Background and Objectives

Ahkil li Casbah 3D is a pioneering initiative aimed at reviving the history and heritage of the Algerian Casbah through cutting-edge technologies. It serves as a bridge between the past and the present, offering an educational and entertaining experience that contributes to preserving cultural heritage and promoting tourism in Algeria.

The project aims to revive the cultural and historical legacy of the Casbah through a virtual museum experience that allows visitors to explore its streets and landmarks while listening to narratives by animated characters from popular Algerian history arise their awareness.

Technological Components

- **Virtual Reality (VR):** To immerse visitors in a realistic Casbah environment.
- **3D Scanning & Modeling:** To reconstruct houses, markets, and landmarks.
- **Artificial Intelligence:** For creating interactive storytelling characters.
- **Game Engines (Unreal/Unity):** To develop dynamic scenes and UI/UX interfaces.

Table (3): SWOT Analysis

Component	Technology Used	Function
3D Display	3D Modeling, Photogrammetry	Reconstruction of sites
Interaction	VR headsets, controllers	User exploration
Storytelling	NLP + TTS	Simulated narrators
Historical Accuracy	National Heritage Archives	Verified content

Source: (Baraka News, 2024)

The Project as a Cultural-Tech Startup

“Ahkil li Casbah 3D” represents a promising model of cultural and technological entrepreneurship. It is based on:

- **An Innovative Business Model:** Offering cultural content via paid or free access, in partnership with educational and tourism institutions.
- **Funding Sources:** Government support, crowdfunding, and international cultural heritage programs.
- **Added Value:** Attracting non-traditional heritage audiences and providing a unique educational tourism experience.

Table (4): SWOT Analysis

Aspect	Description
R Strengths	Authentic local content, official institutional support
Weaknesses	High production costs, limited digital infrastructure
Opportunities	Expansion to other heritage sites, school partnerships
Threats	Low public awareness, competition from global platforms

Source: (Baraka News, 2024)

7.1.2 Overview of Djazair VR:

Djazair VR offers a cutting-edge virtual tourism experience that allows users to virtually visit various iconic sites across Algeria, including historical monuments, archaeological sites, and cultural landmarks. The company’s focus is on creating high-quality, interactive virtual tours that provide users with an authentic sense of Algeria’s rich heritage, from the ancient Roman ruins in Timgad to the Kasbah of Algiers (Ahmed & Saleh, 2019).

Technology Used:

- **Virtual Reality (VR):** Utilizing immersive VR technologies, Djazair VR provides users with the ability to explore Algeria’s heritage sites in a 3D virtual environment, offering an experience that simulates physical visits.
- **360-Degree Photography:** The company uses 360-degree photography to capture historical locations, allowing users to experience a full panoramic view of the sites.

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- **Interactive Content:** Each virtual tour is designed to be interactive, allowing users to click on specific landmarks or information points to learn more about the site's history, culture, and significance.

Key Objectives of Djazair VR:

- **Preserve Cultural Heritage:** Djazair VR aims to digitally preserve Algeria's historic sites, ensuring that they are accessible for future generations, even in the event of physical deterioration or destruction (Boucenna, 2021).
- **Increase Global Tourism:** By offering virtual tours, the company seeks to make Algeria's tourism sector more competitive on the global stage, attracting international tourists who may not be able to travel to the country in person (Al-Rahbi, 2020).
- **Enhance Domestic Tourism:** In addition to attracting international tourists, the company also aims to raise awareness and spark interest among Algerians to explore their own country's cultural heritage (Ba'atout, 2018).

Statistical Insights into Djazair VR's Impact:

Based on Djazair VR's data for 2023, the company has achieved significant growth in terms of user engagement and virtual tour bookings. Here are some key statistics:

Table (5): Key Performance Metrics of Djazair VR (2023)

Metric	2023
Number of Virtual Tours Offered	15+
Total Users (National)	100,000+
Total Users (International)	30,000+
Average Time Spent per Tour	25 minutes
Number of Sites Captured in VR	20+
Average User Rating	5/4.5
Partnerships with Cultural Institutions	5
Revenue Growth (Year-over-Year)	35%

Source: Internal company report, Djazair VR (2023).

These figures indicate the growing popularity of virtual tourism and highlight the significant potential for Djazair VR to contribute to the local tourism sector.

Economic and Cultural Impacts:

Djazair VR is having a positive economic impact on the local tourism sector by attracting a wide range of tourists—both local and international—who might not otherwise have had access to Algeria's most iconic heritage sites. By enhancing the accessibility of these sites, Djazair VR is helping to promote cultural awareness and national pride among Algerians.

- **Tourism Promotion:** According to a 2023 report by the Algerian Ministry of Tourism, virtual tourism projects like Djazair VR have increased online engagement with Algerian heritage sites by 40%, highlighting the growing interest in Algeria's history and culture (Ministry of Tourism and Traditional Industries, 2023).

- **Cultural Preservation:** Virtual tourism plays a key role in preserving cultural heritage in regions where physical access may be restricted due to environmental, political, or economic factors. For instance, virtual tours of the ancient ruins of Timgad allow users to explore the site from the comfort of their homes while minimizing the risk of wear and tear on the actual site.

Challenges Faced by Djazair VR:

Despite its success, Djazair VR faces several challenges that must be addressed in order to expand its impact:

- **High Development Costs:** Developing high-quality VR content requires significant financial investment in technology and expertise. This can be a barrier for smaller startups in Algeria (Blank & Dorf, 2012).
- **Limited Internet Access:** While Algeria is making strides in improving its digital infrastructure, access to high-speed internet is still limited in some regions, affecting the accessibility of virtual tourism services (Statista, 2024).
- **Cultural Barriers:** While virtual tourism offers unique opportunities for promoting Algeria's heritage, some local communities may be resistant to embracing digital innovations, preferring traditional forms of tourism (Shabaan & Haddad, 2021).

Future Prospects:

As the demand for virtual tourism continues to rise globally, Djazair VR has significant potential for growth. The company plans to expand its offerings by:

Creating More Virtual Tours: The company plans to increase the number of heritage sites available for virtual tours, including lesser-known but culturally significant locations across Algeria.

International Partnerships: Djazair VR is exploring partnerships with international tourism agencies and virtual reality companies to expand its reach and attract a broader audience.

Mobile VR: The company is also working on developing mobile-compatible VR experiences to make virtual tourism more accessible to users with smartphones.

8. The Role of Government and Private Sector in Supporting Virtual Tourism:

The government plays a crucial role in supporting virtual tourism by providing the necessary technological infrastructure and offering financial and legislative incentives. The private sector should invest in this field by collaborating with startups and adopting modern technologies (Al-Rahbi, 2020). Key strategies for boosting virtual tourism in Algeria include:

- **Digital Promotion:** Utilizing social media and video platforms to promote virtual tourist destinations.
- **Training and Development:** Offering training programs for tourism sector workers to adopt virtual technology.
- **Strategic Partnerships:** Encouraging partnerships between startups and large companies to develop integrated tourist experiences.
- **Research and Development:** Supporting projects in virtual reality to foster innovation (Boucenna, 2021).

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To further elaborate and explain the previous strategies, we present the following points based on the previous strategies:

- **Developing High-Quality Virtual Reality Content**
Filming Algeria's tourist attractions using 360-degree cameras to provide a comprehensive and enjoyable viewing experience. Creating interactive virtual tours of archaeological and natural sites such as the Casbah in Algiers, the ruins of Timgad, and Tassili n'Ajjer National Park.
- **Launching Virtual Tourism Applications and Platforms**
Developing apps that allow users to explore Algeria virtually through their smartphones, as well as creating websites and interactive platforms that enable a global audience to take virtual tours.
- **Cooperation with Global Travel Agencies**
Forming partnerships with international travel agencies to include Algeria's virtual tourism experiences in their promotional programs. Organizing joint promotional campaigns targeting potential tourists through exciting virtual experiences.
- **Using Social Media**
Publishing interactive content, such as videos and panoramic images, on social media platforms like Facebook, Instagram, and YouTube. Collaborating with influencers in the travel and tourism industry to promote Algeria's virtual experiences.
- **Organizing Virtual Events**
Organizing virtual exhibitions and events to highlight Algeria's tourist experiences interactively. Hosting virtual cultural events such as concerts, art exhibitions, and heritage shows to introduce visitors to Algerian culture.
- **Providing Customized and Personalized Experiences**
Offering tailored virtual experiences based on users' interests, such as food tours, shopping, or outdoor adventures. Enabling direct interaction with VR tour guides to answer visitors' inquiries and provide guidance.

Conclusion:

Virtual tourism represents one of the most promising strategic solutions to overcome the structural constraints faced by traditional tourism in Algeria, such as weak infrastructure, limited access, and lack of effective promotion. This study has shown that technological innovation in delivering tourism experiences can open new horizons for the national tourism industry, contributing to its revitalization and development through digital platforms that provide immersive and engaging experiences.

Existing initiatives, particularly the "Ahkili Kasbah 3D" project, have demonstrated the significant potential that virtual tourism can offer in the areas of heritage preservation, destination marketing, and attracting potential visitors, even in the face of on-the-ground challenges. However, achieving this ambition requires a supportive legal and regulatory framework, effective partnerships between the public and private sectors, and the provision of an innovation-friendly environment that keeps up with technological advancements.

Thus, the key contributions of virtual tourism summarized as follows:

- Expanding the potential visitor base through pre-visit exploratory experiences, increasing the likelihood of actual visits.
- Supporting the local economy by boosting tourism revenues and stimulating demand for related services.
- Promoting Algerian culture and heritage globally in a modern and interactive way.
- Offering safer and more innovative travel experiences through augmented and virtual reality.
- Encouraging tourism stakeholders to diversify products and services in line with the evolving behaviors and needs of modern tourists.

Recommendations:

1. Strengthen cooperation between the government and private sector to provide financial and technical support for virtual tourism projects.
2. Create realistic and appealing virtual content highlighting Algeria's diverse tourist destinations.
3. Utilize social media platforms to disseminate interactive content (e.g., 360-degree tours) to enhance digital promotion.
4. Organize virtual events and exhibitions to display Algeria's tourist and cultural assets internationally.
5. Customize virtual experiences based on visitors' interests (culture, adventure, environment, culinary) to increase engagement and appeal.
6. Train tourism personnel via specialized programs on virtual and augmented reality tools.
7. Support smart tourism research and development to enhance innovation and improve virtual experience quality.
8. Develop an integrated national strategy for virtual tourism, encompassing content development, promotion, training, and international partnership growth.

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