
Virtual museums as a new mechanism to enhance tourism marketing of cultural heritage - pioneering global experiences

المتاحف الافتراضية كآلية مستحدثة لتعزيز التسويق السياحي للتراث الثقافي
- تجارب عالمية رائدة -

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Received:30/08/2024

Accepted:10/10/2024

Published: 31/10/2024

Abstract :

This study aims to explore the role of virtual museums in marketing cultural heritage and highlighting cultural and historical components, thereby enhancing tourism attraction and supporting heritage tourism. The findings indicate that virtual museums serve as a smart alternative for showcasing and promoting cultural tourism assets, particularly tangible and intangible heritage and various elements related to cultural legacy. The study also reveals that this type of virtual museum is gaining significant popularity, especially in many tourism sectors of developed countries and some Arab countries with substantial tourism appeal, particularly following the COVID-19 pandemic.

Therefore, the study recommends the integration of physical museums with virtual museums by involving visitors in a comprehensive museum experience that focuses on digitization and artificial intelligence. Additionally, there is a need to seriously protect displayed cultural heritage from theft and antiquities trafficking. A precise information system should be established to identify visitors, enhancing the protection of virtually exhibited heritage. The study also advocates for the transfer of leading global experiences to the tourism sector in Algeria, given the rich cultural resources this country possesses and the comparatively low tourist demand relative to neighboring countries.

Keywords: Virtual Museums; Tourism Marketing; Cultural Heritage; Cultural Components; Global Experiences.

JEL classificationcodes:Z320 ; Z330 ; L83

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1-Introduction :

Museums are a fundamental part of tourism in any country, representing some of the most prominent cultural and historical landmarks visited by both tourists and locals. They offer an opportunity to engage directly with art, history, and culture, contributing to knowledge dissemination and education.

The application of information and communication technology to showcase tourism products-particularly cultural heritage-requires the creation of unique and enjoyable experiences for visitors. This allows for direct exploration of exhibits, artworks, and historical artifacts, enabling visitors to learn and enjoy the cultural and artistic heritage of the countries they visit, enriching their cultural lives and broadening their horizons. Therefore, museums are an integral part of cultural tourism, enhancing the travel and exploration experience for visitors.

In this context, virtual museums have emerged as a new type of museums playing a significant role in the tourism sector worldwide by enhancing tourism offerings and promoting cultural sites accessible to visitors.

This raises the following research question:

How do virtual museums contribute to enhancing the tourism offer of cultural heritage and its marketing? What are the keys leading global experiences in this regard?

To address this question, we have divided our research into three main sections:

Section One: The nature of virtual museums

Section Two: The Nature of Tourism Marketing for Cultural Heritage

Section Three: Leading global experiences in virtual museums

2- The Nature of the virtual museums

Museums are institutions that preserve cultural, historical, and artistic collections and display them to the public. They come in various shapes and sizes and cover a wide range of topics, including fine arts, natural history, sciences, technology, global cultures, and cultural heritage. In this context, we will explore the nature of virtual

museums, their characteristics and features, as well as the key advantages they offer in showcasing the cultural heritage of a specific region.

2-1 Definition of themuseum

A museum is defined as "a place where artifacts are gathered, and an artifact is a rare and valuable object whose worth increases with the passage of time and the concept it represents. Thus, a museum is a place for acquiring, documenting, preserving, maintaining, and displaying artifacts in all their forms."(Rafat, 2022, p. 11).

We can distinguish between three categories of museums:

- **Art Museums:** These include museums that house paintings by renowned artists, artistic schools, sculptures, crafts, and human creations.(Larbi, 2023, p. 321)
- **Science Museums:** This category includes natural history and science museums, which focus on preserving inventions and devices from the early European Renaissance. These museums safeguard scientific experiments and inventions, expressing society's gratitude to those who made significant scientific and technical contributions.
- **Heritage Museums:** These museums generally contain artifacts from successive ancient civilizations. They display both tangible and intangible heritage. From this type of museum, the virtual museum has emerged, which we will discuss in detail in the following section.

2.2 Definition of the virtual museums

A virtual museum is defined as "an online site that represents a virtual entity for displaying various museum artifacts located in different museums or places within a single location on the internet. It allows for commentary, publishing related research and studies, and other museum services."(Mustafa , s.d.)

The virtual museums are also described as "digital libraries that store images and information aimed at the public through personal computers or smartphones, enabling users to interact with the content by accessing embedded information and searching the internet. This allows audiences worldwide to virtually visit museum galleries and view numerous artifacts, which may be difficult for many to access due to location or safety concerns."(Larbi, 2023, p. 324)

Virtual museums can take various forms, such as websites for real museums that allow individuals to visit and view the displayed works from home via their computers, or entirely non-physical museums that gather works of art from a specific artist or a group of artists.

2.3 Advantages of Virtual Museums

Virtual museums offer several advantages that make them an ideal choice for both visitors and tourists, significantly expanding access to art, culture, and knowledge:

- **Ease of Access:** Individuals from around the world can easily visit virtual museums without the need for travel.
- **Breaking Time and Space Barriers:** Visitors can explore virtual museums at any time, providing easy access to the necessary information about the museum's identity.
- **Permanent Preservation:** Virtual museums allow for the permanent and secure storage of exhibitions and artifacts, facilitating access for academic research and future studies without the risks of material degradation or natural disasters.
- **Guidance and Direction:** They can offer guides and instructions to help visitors explore exhibitions in greater depth and understand the historical and cultural context of the displayed items.
- **Unlimited Simulation Environment:** Virtual museums create limitless simulated environments, allowing organizers to offer unique interactive art experiences that are not possible in traditional museums.
- **Diverse Virtual Exhibitions:** Virtual museums can host a wide range of exhibitions, covering visual arts, history, science, and various cultures, providing diverse experiences for visitors from different backgrounds and interests.
- **Digital Sharing of Collections:** Collections can be showcased online, enabling the digital exchange of content worldwide.
- **Accessibility Services:** Virtual museums can provide various services for individuals with disabilities, which can be challenging to implement in physical museums.
- **Innovative Interactivity:** They can provide interactive experiences that allow visitors to engage with displayed

elements in creative ways, such as zooming in, reading additional information, and interacting with exhibits in various ways.

- **Cost-Effectiveness:** Establishing a virtual museum is generally less expensive than a physical one, while also enabling the digital contextualization of artifacts.(Sadat Museum, 2024)

2-4 Specifications of virtual museums:

There are several specifications that should be considered and provided in a virtual museum, including:(Kafaia & Ahmed , 2017, p. 465)

- **Simplicity:** The simpler and more user-friendly a virtual museum is, the more it helps achieve its goals. This can be accomplished through a design that makes it easy to use for both operators and beneficiaries.
- **Integration:** The virtual museum must provide integration among the various processes within the documentation procedure.
- **Flexibility:** The virtual museum should have the flexibility to add, delete, or modify data without causing any disruptions that affect the efficiency of the documentation process.
- **Compatibility:** Consideration should be given to the compatibility of the virtual museum with other digital systems.
- **Security:** The virtual museum should be secured by implementing a system to identify users and regulate access to the documented materials.
- **Speed:** This includes the speed of data processing and the speed of information retrieval, which saves time and effort in searching for and accessing documented materials.
- **Multiplicity:** The system should allow for simultaneous searching and retrieval by multiple users for the same material.

2-5 Techniques for displaying tourism products in virtual museums:

The most important techniques used by virtual museums to display cultural heritage include:

- **Interactive Screens:** This technology allows visitors to interact directly, engaging their interest and delivering information in an enjoyable manner. These screens can be either touch-sensitive or equipped with sensors, capable of displaying dynamic, interactive multimedia content that responds to visitors' movements.
- **Augmented Reality (AR):** This technology combines reality with virtual elements by adding sound, video, and graphics in a way that makes the visitor feel that the virtual elements are part of the real world.
- **Hologram Technology:** Holography is an advanced technique for creating three-dimensional images using laser beams. This technology achieves artistic awe in all its elements.
- **Virtual Reality (VR):** This is a digital technique for representing objects, people, and environments that allows for complete immersion and interaction between them and the user. It involves using a computer for interactive modeling and simulation, enabling a person to engage with three-dimensional sensory or visual products as if they were real objects in the physical world.(Aliya , 2022, p. 240)

3. The Nature of the tourism offer for the cultural heritage

Tourism offer for the cultural heritage plays a significant role in the tourism industry of many countries. It encompasses a wide range of activities and attractions that a destination offers to visitors, while cultural heritage refers to the cultural and historical legacy of communities.

3-1 Definition of tourism Offer

Tourism offer is defined as "everything that a country can present as attractions and tourism incentives to develop tourist traffic from various countries around the world." (Abdel , 2016, p. 101)The characteristics of tourism offerings include:

- The tourism product is closely linked to human involvement, as the tourism service is provided by people for other people.

- Therefore, the quality of the tourism product is significantly affected by the skills and behaviors of those involved.
- A large portion of tourism products is produced and consumed simultaneously in the same place and time due to their intangible nature, such as events and cultural services.
 - Offer Tourism consist of a complex and diverse mix of goods, services, and natural components. It is often difficult to separate these elements, and tourists may engage in multiple tourism styles simultaneously.
 - As long as tourism need is a luxury need, the tourism offer is subject to competition from alternative goods. Given the widespread availability of tourism offerings globally, countries compete to market their tourism products.
 - The diversity and breadth of tourism offerings mean that many producers contribute to creating the tourism product. This includes those within the tourism sector, such as hotel owners, restaurants, and travel agencies, as well as those outside the sector, like power and gas companies and other infrastructure projects. Each producer plays a role in shaping the tourism offer.(Wassila, 2019, p. 5)
 - The provision of tourism services is complex, making the delivery process not straightforward.(Nesrine, 2017, p. 94)

3-2 The Nature of Cultural Heritage

Heritage encompasses what individuals have inherited from their ancestors, including both tangible and intangible values. Culture, in its broadest sense, is a subjective expression of the world, whether originating from individuals or communities. Thus, cultural heritage constitutes "the material and intellectual legacy left by humans, accumulated over time and capable of surviving as long as its importance and various values are recognized and preserved across generations." This distinguishes it from natural heritage, which is shaped by nature and geography and has maintained its place over time(Mohamed & Abdel Nasser , 2010, p. 27).The characteristics of cultural heritage include:(Wael, s.d.)

- **Social Nature:** Cultural heritage must have a social character relevant to a specific community.

- **Historical Value:** It possesses historical and cultural significance, combining knowledge and techniques passed down through generations.
- **Adaptability:** Cultural heritage can adapt to the cultural changes and developments of society. For example, certain rituals can be revived with new ideas.
- **Educational Aspect:** The primary purpose of cultural heritage is to teach and educate about the community's past.
- **Cultural Identity:** It is an integrative element of any society, as it is transmitted between generations and is rooted in the social activities of each community.
- **Conservation Requirement:** Cultural heritage may fade if its historical and cultural values are not maintained, ensuring its continuity over time.

4- The Nature of tourism marketing for cultural heritage

Tourism marketing for cultural heritage is a strategic process aimed at attracting visitors and enhancing awareness of the importance of cultural heritage. This involves utilizing various methods and tools. In this section, we will explore the definition of heritage tourism as well as the nature of cultural heritage tourism marketing and its key features.

4-1 Definition of Heritage Tourism

Heritage tourism is defined as a part of cultural tourism that tourists, whether local or international, engage in to enhance their knowledge of local and global heritage. This cultural heritage encompasses rich components that include both tangible and intangible aspects of specific peoples. It includes traditional arts, crafts, history, language, cultural customs and traditions, as well as rituals preserved through generations. Ultimately, these elements reflect the cultural uniqueness of a specific ethnic group. (abdallah, 2023, p. 348)

4-2 Definition of Tourism Marketing

Tourism marketing is defined as all organized efforts and activities conducted in a coordinated manner by all service providers in tourism, aimed at satisfying the tastes and desires of tourists. (Mohamed A. , 2005, p. 17) Cultural heritage tourism marketing specifically seeks to attract visitors and promote awareness of the cultural and historical values of a particular site. This type of

marketing encompasses a range of activities and plans focused on highlighting cultural landmarks and associated events. The features of cultural heritage tourism marketing include:(Timothy, 2011)

- Emphasizing the unique characteristics that distinguish each cultural site, helping to build a strong identity that reflects local heritage.
- Collaborating with local communities, cultural institutions, and museums to ensure effective promotion and knowledge exchange.
- Focusing on developing tourism that preserves cultural heritage while benefiting local communities and the environment, thus supporting sustainable tourism.
- Creating marketing strategies that align with the interests and desires of visitors, enhancing their experience and increasing the likelihood of repeat visits.
- Offering interactive experiences through workshops, guided tours, and cultural events that allow visitors to engage directly with the heritage.
- Utilizing modern information and communication technologies, such as virtual reality and augmented reality, to create educational and entertaining experiences that deepen understanding of culture.
- Relying on digital marketing tools such as social media and websites to disseminate information, images, and videos that highlight cultural landmarks.

4-3 The Role of Virtual Museums in Promoting Cultural Heritage

Museums are vital institutions in preserving cultural heritage and play an important role in protecting and transmitting it to future generations. The role of virtual museums in promoting cultural heritage includes:

- **Protecting Cultural Heritage:** Virtual museums remind us of the need to safeguard cultural heritage by providing a secure environment for artifacts and cultural treasures, aiding in their preservation and maintenance.
- **Remote Promotion of Cultural Heritage:** Virtual museums promote cultural heritage remotely while supporting

communication through awareness and education, presenting historical and cultural information in an engaging manner for visitors of all ages and backgrounds.

- **Research and Documentation:** Virtual museums study and document cultural heritage through research and scientific analysis, contributing to a deeper understanding of this heritage and its history, thereby enhancing tourism offerings through digital marketing strategies.
- **Social and Cultural Communication:** Virtual museums serve as a platform for social and cultural interaction, where people gather to enjoy arts and history and share opinions and experiences.
- **Boosting Sales of Tourism Services:** Virtual museums can significantly impact increasing sales of tourism services they offer to visitors, attracting users who may not typically visit traditional museums.
- **Global Cultural Tourism Promotion:** Virtual museums contribute to promoting cultural tourism worldwide, attracting both domestic and international tourists to explore heritage and culture, thereby achieving tourism development.

4-4 The Role of Virtual Museums in Enhancing Digital Marketing Tools

The development of virtual reality technologies has become a promising and useful tool in organizing and managing the tourism industry. The widespread use of virtual museums contributes to marketing tourism offerings by attracting potential visitors to specific tourist destinations and enhancing digital marketing through the perceptions these museums create about those destinations. Virtual museums have a strong connection with digital marketing tools through:

- Virtual tourism helps document and market cultural heritage sites.
- Virtual museums help identify visitor expectations and satisfaction, although understanding visitor identity is challenging and requires research into tourism demand for this type of virtual promotion.

- Virtual travel experiences offer various functions, including education and entertainment, making them a promising digital field for promoting tourism.
- Enhancing the skills and capabilities of virtual museum managers contributes to adopting constructive tourism marketing strategies that achieve economic and social development results.
- Researchers in marketing can study visitor behavior, understand their motivations for visiting, and analyze the relationship between their experiences, satisfaction levels, and likelihood of repeat visits.
- Virtual museums strive to address challenges posed by competition from other tourism institutions to attract visitors effectively.

5- Leading Global Experiences in Marketing Cultural Heritage Through Virtual Museums:

There are many virtual museums around the world that provide educational and entertaining online experiences for visitors by leveraging information technology and various networks. Several outstanding models exist in this field to enhance visitor experiences and deepen their understanding of culture. Virtual museums contribute to expanding access to cultural heritage, marketing, and promoting it, thereby increasing tourist attraction to cultural heritage in many countries. Below are the prominent global experiences in showcasing cultural heritage through virtual museums:

5-1 Virtual Museum Experience in Britain

The famous British virtual museum, located in the heart of London, allows virtual visitors to explore the Great Court and discover the Rosetta Stone, which dates back to 196 BC. In addition to Egyptian mummies and many other artifacts, the British Museum's virtual tour showcases a wide array of cultural and artistic heritage.(Romano, 2024)

5-2 Virtual Museum Experience in France

The virtual Louvre Museum in Paris offers a virtual tour of a large collection of famous artworks held by the museum. The Louvre has launched a new database that allows the public free online access to all works in its collections, both displayed and not, with explanations

provided for three-quarters of them. The site currently includes over 482,000 photographed records, which is about three-quarters of the collections, replacing the old "Atlas" database that was limited to displayed works. The platform includes the Musée Delacroix (part of the Louvre), sculptures from the Tuileries Palace, and artworks returned from Germany since 1945, entrusted to the Louvre while awaiting their return to their rightful owners.

5-3 Virtual Museum Experience in the United States

The virtual Museum of Modern Art (MoMA) in New York offers a virtual tour of its magnificent collection of modern and contemporary art. Additionally, Google's virtual tour feature allows visitors to explore the famous spiral staircase at the Solomon R. Guggenheim Museum from the comfort of their homes, providing a view of various paintings and artworks from Impressionism to Modern Post-Impressionism. In Washington, the National Museum of Natural History offers numerous virtual exhibitions on natural history and science, providing a 360-degree virtual tour of its collections as one of the world's most popular museums. (Virtual tours between Arab and international museums, 2022)

5-4 Virtual Museums in Egypt

The Digital Egypt Portal offers tourists and various visitors, both domestic and international, the chance to explore archaeological sites and more than 80 diverse museums using "virtual reality" as a method of modern tourism promotion. (Asma, s.d.) The Bibliotheca Alexandrina employs advanced technologies to design virtual tours, achieving significant online visits from around the world. Additionally, the museum uses 2D technology to create displays of key artifacts for the visually impaired. The Grand Egyptian Museum is set to be one of the largest museums in the Middle East and the world dedicated to a single civilization, designed similarly to the pyramids, expected to house around 100,000 artifacts from prehistoric times to the Greco-Roman period, aiming to attract about 5 million visitors annually. To ease pressure on physical visits and preserve cultural heritage, Egypt's Ministry of Tourism and Antiquities has launched virtual tours inside the Grand Egyptian Museum, which will showcase its collections in a hybrid format (both physical and virtual) upon its opening this year.

5-5 Virtual Museum Experience in Palestine

The idea for the Palestinian virtual museum emerged from collaboration between the Ministry of Tourism and Antiquities, UNESCO, Sweden, and other institutions. The Palestinian Ministry of Tourism and Antiquities has launched its first virtual museum on its online platform, featuring a selection of archaeological materials that represent the civilizational development in Palestine, starting from the prehistoric era until the British mandate in 1948. The materials displayed in this initial phase are limited, consisting of 40 pieces representing different historical periods. This project is open to development and expansion, providing descriptions of each major historical era in Palestine supported by 3D images of artifacts used in daily life, discovered at various sites in Palestine. A distinctive feature of this museum is that users can view a digital version of the artifacts that resembles reality, allowing them to rotate and examine them from different angles while reading and listening to brief explanations about their use. This virtual museum, with its content, serves as a foundation for a larger project to document Palestinian artifacts and present them for educational and research purposes.(Antiquities, 2023)

5-6 Virtual Museum Experience in Tunisia

The concept of the museum began in 2019, focusing primarily on producing a selected range of cards that introduce Tunisian heritage in three languages: Arabic, French, and English.(Tunisiamirror, 2024) This includes showcasing significant printed and manuscript collections, as well as important landmarks, figures, institutions, and professions related to books and periodicals, in an attractive and documented manner. The "Virtual Museum of Written Tunisian Heritage" has been launched to highlight the significant literary, intellectual, and scientific contributions produced in the country throughout various eras. The project aims to introduce a selected range of artifacts in Arabic, French, and English, showcasing key items from printed and manuscript libraries, along with important landmarks and institutions linked to the production and documentation of books. Additionally, various initiatives and agreements with the National Tunisian Tourism Office aim to showcase Tunisia's cultural heritage virtually using modern technologies and artificial intelligence.

5-7 Future vision for virtual museums and cultural heritagepresentation in Algeria

Algeria boasts a diverse cultural heritage, including folk arts ranging from Algiers popular art and Qsanṭini Melodic to Andalusian singing and Kabyle style, all of which contribute significantly to tourist attraction through festivals and events. Traditional cuisine is also among the essential elements that tourists seek to explore due to the diversity of food customs across different cultures.(Noura , 2022, p. 365) The cultural heritage in Algeria includes a significant number of museums, such as:

- **The National Museum "Cirta" in Constantine:** Established in 1852, it houses numerous excavated artifacts from Constantine and the eastern region of Algeria.
- **The National Bardo Museum in Algiers:** Contains prehistoric excavations and African artifacts.
- **The National Museum "Zabana" in Oran:** Showcases prehistoric artifacts and natural sciences.
- **The National Museum of Resistance in Algiers:** Displays various modern arts, including painting, photography, and sculpture.
- **The National Museum of Popular Arts in Algiers:** Features exhibits of traditional industries and Algerian folk arts.

Given the vast cultural heritage, many initiatives are underway to establish virtual museums in Algeria to enhance the presentation of cultural heritage. The initiative by the Algerian National Public Museums aims to create a digital and virtual transformation for displaying Algerian national heritage, suggesting a promising future for this type of museum, especially if a network is established connecting national museums to share resources, knowledge, and information smoothly among different cultural institutions. This network should be supported by a comprehensive information bank covering various aspects of Algeria's national heritage. Algeria's experience in virtual museums has been limited compared to the previously mentioned experiences. For instance, UNESCO's initiative provides access to Algerian and global archaeological sites through Google for enthusiasts and those interested in discovering cultures and their histories, particularly concerning Algeria's

UNESCO-listed cultural heritage. The National Tourism Office intends to produce 3D films of tourist areas like "Askaram" in Tamanrasset, as well as the archaeological site "Santa Cruz" in Oran, known for its stunning view of Oran city and its coastal region, as part of promoting the Algerian destination. International tourism and travel exhibitions in Oran, Constantine, and others offer a great opportunity to promote the Algerian destination through traditional promotional materials (brochures and booklets) and virtual means (social media and virtual tours) to enhance cultural tourism offerings in the region.

6-Conclusion:

Through this research, we have concluded that virtual museums significantly enhance the presentation of cultural and artistic content, making it accessible to everyone, regardless of their geographical location or ability to travel. Most museums around the world have begun to rely on online platforms and social media to showcase their collections and promote cultural activities such as seminars and roundtable discussions focused on cultural issues and heritage. This approach helps spread museum culture and encourages people to explore their collections.

Major museums in Algeria are adopting this strategy by utilizing social media to highlight their collections and announce program activities, allowing visitors to freely explore exhibits and artworks. Interactive means such as images, videos, virtual tours, and detailed information enable deeper engagement with the content. Consequently, virtual museums are a valuable addition to the online cultural community, merging technology with culture to provide a rich and enjoyable exploratory experience for visitors. Thus, virtual museums effectively contribute to enhancing tourism marketing, particularly digital marketing, using various tools to increase tourism demand, especially for culturally rich tourist destinations worldwide.

Based on these findings, the study recommends the following:

- Establish dedicated websites for museums, particularly Algerian museums, to allow visitors to explore cultural heritage online.

- Create virtual tours, digital exhibitions, and educational resources to expand access to cultural content and enhance tourism offerings.
- Develop virtual museum environments that enable visitors to interactively and realistically explore exhibitions and cultural artifacts online.
- Advance interaction techniques, virtual reality, and interactive visits to make the virtual museum experience more exciting and realistic for visitors.
- Strategically plan for the establishment of virtual museums by tourism stakeholders in Algeria, supported by further studies to better understand the role of technology and digitization in the heritage sector.
- National public museums in Algeria should adopt digital marketing and promotional strategies to attract audiences to virtual museums and websites.
- Collaboration with the private sector and academic institutions can play a crucial role in supporting these initiatives and developing the digital technologies used in virtual museums.

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