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Review

Analyzing Cultural Routes and Their Role in Advancing Cultural Heritage Management within Tourism: A Literature Review

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Abstract: This paper constitutes a comprehensive literature review within the field of cultural tourism, with a particular focus on the concept of the cultural route as a tourist-cultural product. Within this framework, the paper offers an overview of contemporary technological challenges, concerns, and limitations. It thoroughly explores cutting-edge technologies pertaining to the promotion of cultural heritage, both in general and in the specific context of realizing the concept of the cultural route, a tourist-cultural service enriched by the utilization of new media. Additionally, it extensively references the latest techniques and models for enhancing the user experience of digital cultural tourism products. Moreover, the paper showcases existing digital platforms and tools that encapsulate and emphasize the notion of cultural tourism. It assesses the respective methodologies, technologies, and techniques employed in each case, accompanied by illustrative instances of their applications.

Keywords: cultural routes; cultural heritage; cultural management; analysis; digital culture; tourism

1. Introduction

Contemporary trends within the realms of culture and tourism underscore the growing desire among travelers to venture beyond conventional experiences. Simultaneously, advancements in information and communication technologies have facilitated easier access to cultural wealth, shaping the demand for fresh cultural offerings. The role of cultural routes in this context is undeniably crucial, necessitating their utilization by cultural institutions and their integration with the tourism sector.

This paper constitutes a comprehensive literature review within the field of cultural tourism, with a particular focus on the concept of the cultural route as a tourist-cultural product. It scrutinizes the cultural route through the lens of cultural tourism, underscoring the cultural heritage of a location as a pivotal element in crafting a tourist-cultural itinerary. Furthermore, the paper delves into the emergent trends within cultural tourism and the dynamic interplay between the Culture and Tourism sectors, adopting a comprehensive and pervasive perspective. Concurrently, it identifies and categorizes the pertinent practical efforts within both the academic literature and the cultural and tourism industries.

Within this framework, the paper offers an overview of contemporary technological challenges, concerns, and limitations. It thoroughly explores cutting-edge technologies pertaining to the management of cultural heritage, both in general and in the specific context of realizing the concept of the cultural route, a tourist-cultural service enriched by the utilization of new media. Additionally, it extensively references the latest techniques and models for enhancing the user experience of digital cultural tourism products. Moreover, the paper showcases existing digital platforms and tools that encapsulate and emphasize the notion of cultural tourism. It assesses the respective methodologies,

technologies, and techniques employed in each case, accompanied by illustrative instances of their applications.

The rest of this paper is structured as follows: Section 2 reviews existing cultural heritage fields. Section 3 discusses the state of the art regarding cultural routes, while Section 4 presents the planning of a cultural route. Finally, conclusions and future research points are drawn in Section 5 and 6.

2. Background knowledge

2.1. Cultural Tourism

The relationships between "culture" and "tourism" and the complex nature of culture have led to significant ambiguities in the existing literature regarding a clear and universally accepted definition of cultural tourism [1]. Cultural attractions, in their classic forms as landmarks (e.g., museums, architecture, heritage sites) or events (e.g., festivals, folklore), are considered important factors attracting travelers and motivating their journeys. Cultural tourism, in theory, is regarded as a long-standing tourist practice with its roots in the 16th-century British Grand Tour [2]. Defining cultural tourism proves challenging due to the complexity of its elements and characteristics. Several early authors [3,4] view cultural tourism as a form of specialized interest travel, where tourists seek new and authentic experiences, including aesthetic, intellectual, emotional, or psychological dimensions. According to Adams [5], who provides a broad definition, cultural tourism is seen as a form of travel for personal enrichment.

On the other hand, UNWTO approaches cultural tourism with a more inclusive definition. According to UNWTO, cultural tourism encompasses "movements of persons for essentially cultural motivations such as study tours, performing arts and cultural tours, travel to festivals and other cultural events, visits to sites and monuments, travel to study nature, folklore or art, and pilgrimages" [6].

Focusing on definitions originating from the academic world, a clear-cut definition of cultural tourism as "the movement of people for strictly cultural reasons" can be established. However, consensus is elusive when attempting to provide a precise interpretation of cultural motives. This lack of alignment among different definitions stems from the ambiguity inherent in the concept of cultural motivation. Richards [7] notes that despite its historical association with cultural heritage in Europe, cultural tourism now increasingly includes folk culture and other intangible forms of heritage [8–10]. Furthermore, Richards and Wilson [11] argue that not only intangible heritage but also other cultural products such as virtual locations or structures, thematic attractions or large-scale events, have become fully integrated into this definition. Kim et al. [12] even include festivals and musical attractions, amusement parks, local festivals, exhibitions, and aesthetic/cognitive attractions within the scope of cultural tourism.

In summary, culture is a dynamic concept that varies across time and space, thus lending itself to various parameters. While some general agreement exists regarding the definition of cultural tourism as tourism driven by cultural consumption, questions and differences in criteria arise when pinpointing cultural consumption practices (i.e. consumption of cultural heritage, engagement in cultural activities, cultural experiences). This complexity adds nuance to the definition of cultural tourism.

2.2. Cultural Routes

Therefore, having defined and presented the basic characteristics of cultural tourism, we will discuss in this section one of the most important tools for the management, promotion and interpretation of the cultural heritage of a place, the highlighting of common cultural elements of different places, the encouragement of collaborations, intercultural dialogue, and sustainable development: cultural routes.

Based on recent case studies illustrating the different aspects of the relationship between tourism and cultural heritage [13–15], cultural routes represent an experiential way of understanding, through

direct experience and individual discovery, what makes us different and similar at the same time, providing a space for exploration and imagination. Cultural routes not only connect certain regions but also unite different cultures. In the past, they were the main routes for the transfer of goods and ideas, elements of intangible and material heritage worldwide.

By the term "cultural route," we mean different Points of Interest (POI) that share similar characteristics, a central theme, and cover a specific geographical area. These points of interest typically include elements with unique architectural or historical significance, as well as buildings, facilities, and natural landscapes. A more modern and improved version of the cultural route aims to connect the past of a settlement, city, or region with the present.

According to Meyer [16], cultural routes can attract new visitors as well as repeat ones. The dispersal of visitors and the distribution of income from tourism result in a more equitable distribution of economic benefits, while increasing the length of stay and tourist spending generates greater profit. Furthermore, the connection of many attractions that individually may not attract visitors is a key advantage of a cultural route. The synergies created promise greater attractiveness and lead to various benefits, such as increasing the overall appeal of a destination and enhancing the sustainability of a tourism product. Managing transportation capacity is facilitated due to the dispersion of tourists, and negative environmental impacts are reduced as a result of this dispersal.

The content of a cultural route can vary depending on the characteristics of the region and the extent of its cultural and natural heritage. More specifically, from the literature review, it is evident that cultural routes can be categorized thematically into thematic routes (routes that focus on a specific thematic element), historical routes (routes that revolve around monuments and cultural elements of a specific time period or era), and mixed cultural routes (routes that include elements of both cultural and natural heritage, regardless of type or era, as part of the overall cultural landscape of a place). In addition, depending on their scale and extent, cultural routes can be classified as : urban routes (involving only the monuments and other elements of an urban area), local routes (operating within a limited geographical unit, such as within the boundaries of a municipality), sub-regional routes (extending over a relatively broader geographical area, mainly at the regional and inter-regional levels), national routes and cross-border routes [17,18].

In this context, the concept of a cultural route appears to be complex and multidimensional. It introduces and represents a qualitative contribution to the concept of cultural heritage (both cultural and natural) and its preservation. A cultural route can be expressed at a theoretical level defined by the spatial and temporal axes as a geographical representation of continuity based on the dynamics of movement or the concept of exchange. On the other hand, the actual size and density of tangible and intangible elements of the property that remain natural vary from case to case, as does the degree to which their authenticity can be verified. Moreover, among cultural routes, there will be many examples that extend spatially to extremely large scales, ranging from regional to international and even intercontinental levels. Therefore, the placement in the territorial network is the main force of cultural routes. The route is divided into sub-networks and site networks that share common cohesion. The search for this common cohesion and continuity is very important regarding the image and promotion of the destination. Cultural tourism is not limited to a series of visits to places.

Additionally, developments in the fields of information and communication over the past decades offer easier access to the cultural heritage. However, they also diversify the preferences of modern travelers, shaping the demand for new cultural goods and educational forms of entertainment (edutainment).

2.3. Cultural User Experience

User Experience (UX) is related to the overall functionality and usability of an interactive digital application. In recent years, user experience has been recognized as a critical factor for the acceptance not only of interactive systems but also of any industrial product and service. In the context of developing interactive digital applications, the term covers all aspects of a user's experience with

a computer system, such as graphic design, user interface, physical interaction, and user manuals. Undoubtedly, user experience research can be characterized as very complex, involving many different parameters, such as usability, credibility, findability, desirability, and more. As evident, user experience is a broad concept that encompasses and extends the concepts of usability and accessibility, as well as other aspects of user acceptance of an interactive system, including the emotional factor. The interaction between different cultural elements and the diverse cultural backgrounds of users defines the Cultural User Experience (CUX) as “the unique knowledge and experience generated by different cultural identities” [19,20].

Cultural experience is primarily an educational experience [21]. Museums are open spaces where one can learn regardless of their age, educational, social, or economic status. In other words, cultural spaces express the ideal of open education because education is the right of all people, and they can enjoy it throughout their lives, without any restrictions and according to their personal choices. Therefore, these spaces, as lifelong education institutions, can be considered expressions of learning based on free choice.

A large number of cultural navigation applications have been designed and evaluated with the aim of improving the user experience. The Svevo Tour application [22] uses storytelling techniques to attract visitors and enhance their cultural experience while touring a literary museum focusing on the famous Italian author Italo Svevo, who lived in Trieste between the 19th and 20th centuries. During the evaluation process, this application examines the relationship between AR technology and storytelling and the appropriateness of using augmented reality in literary museums with adults who have little experience with AR technologies.

One of the first applications in the cultural sector, Archeoguide, offers personalized tours of archaeological sites. It uses outdoor tracking, mobile computing, 3D visualization, and augmented reality techniques to enhance information, reconstruct ruined areas, and simulate ancient life [23]. Additionally, Sylaiou [24] explores the behavior of virtual characters in virtual museums (VM) environments. Three user models (curator, guard, and visitor) are used as narrators who introduce participants to an emotional story behind a historical sculpture to enhance the user’s cultural experience through personalized interaction [25].

Finally, on the MuseumEye platform [26], information augmentation is based on a hybrid system that combines Simultaneous Localization and Mapping (SLAM) technology and indoor or low-energy Bluetooth (BLE) beacons. These technologies include a combination of multimedia and different levels of visual information required for visitors to navigate the museum. Using mobile devices for the pilot application of the platform, a UX design model was developed to assess the user’s experience and usability of the application. User guidance through the MuseumEye platform at predefined points in the space, where access to multimedia material is available.

Therefore, user experience is a complex concept, which makes its evaluation complex as well, as it is directly related to the physical interaction of users with an interactive system, product, or service. In recent years, the rapid development of interactive technologies, especially touch-based portable devices, combined with the subsequent emergence of online services and applications for various aspects of human activity, including social networks and augmented reality, as well as the continuous improvement of these technologies and applications in terms of usability and accessibility, have contributed to the emergence of more interaction aspects as significant for evaluating the user experience.

3. Cultural Routes: State of the Art

Applications, software, and platforms available on the internet related to cultural routes can find application in various domains, including education, cultural spaces, as well as in the fields of advertising, product promotion, and presentations in professional and academic settings. Certified cultural routes by the Council of Europe’s Cultural Routes Program number approximately 33 and are characterized by thematic diversity and geographical dispersion. Among these are the Routes of

Santiago de Compostela Pilgrims (1987), the Hanseatic Towns (1991), the Viking Routes (1993), the Phoenician Route (2003), the European Route of Jewish Heritage (2004), the Olive Tree Routes (2005), the Wine Routes (2009), and the European Megalithic Culture Route (2013), among others [27,28].

Below, we will examine the most significant and widespread of these efforts, emphasizing both their potential in terms of depicting and creating cultural tours and their instances of implementation by cultural organizations and institutions worldwide.

Firstly, a platform for managing cultural data is PLUGGY [29,30] (Pluggable Social Platform for Heritage Awareness and Participation). The purpose of the PLUGGY platform is to highlight local and national cultural heritage and to interconnect cultural data, offering users communication and interaction services on cultural topics. Through PLUGGY, users can share their cultural experiences and knowledge about their local culture, essentially contributing to the promotion of Europe's cultural heritage. In this way, PLUGGY enables European citizens, even in less developed regions, to actively participate in activities related to local cultural heritage while facilitating their connection to the production of cultural content at both European and international levels. Through collaboration and interaction, users of the PLUGGY social networking platform will be able to develop a shared cultural and intellectual heritage and contribute to shaping a comprehensive European cultural landscape. Many applications have already been developed that showcase the content of this platform through various approaches. For example, PLUGGY's augmented reality application includes virtual models and overlaid information suitable for museums, both indoors and outdoors. Additional applications inform the user about points of interest around them based on their current location, while others include audio tours that enrich the cultural experience.

The platform Historypin [31,32] is another online platform for cultural content that helps collect memories related to locations through the digitization of old photos. By combining modern images with digitized old photographs, the application creates a collection of memories associated with locations, "transporting" the user to the past by reviving personal memories. With the help of GPS technology for content location, users can navigate to any point on the map. The results can be filtered by date, ranging from 1840 (the period when the oldest photos are dated) to the present day. The application uses an augmented reality camera that "places" historical images from the database onto the landscape being filmed in real-time. Furthermore, the platform provides social networking features for users, such as commenting on "uploaded" photos and sharing their own experiences at historical locations, all of which are displayed on a shared cultural map for public access.

The Wikiloc - World Routes [33] platform offers users nature routes (cycling, hiking, sailing, etc.) from around the world. Visitors to the platform can view these routes on the map, categorize them based on difficulty, duration, and distance, read comments and ratings from other users, and see characteristic photos of the route. Additionally, they can suggest and create their own routes and share them with other platform users.

The "Theatres of Epirus" is a cultural route that promises many journeys together, in space, time, and in the world of the five senses. Five archaeological sites and their theaters are the central stations, the starting points for each person to collect and compose the experiences that inspire and interest them. Everything is here: charming monuments and archaeological sites with exceptionally interesting history, architecture, craftsmanship, as well as delicious samples of an ancient, unique tradition, the incredible nature of Epirus. The "Theatres of Epirus" are part of the proposal of the "Diadromi" and aim to organize, in a first pilot stage, a cultural route that shares ancient venues for viewing and listening in Epirus. The goal is for this route to serve as a model for others in different regions of Greece [34].

Clio Muse is an interactive guided tour application that shares unique and interesting stories about selected exhibits, with a visible time duration. Cultural institutions have the ability to process the statistics resulting from user interaction with the exhibits, evaluate them, and plan additional actions accordingly. Curators can manage the content within the application on their own. Finally, they can organize additional activities and engage their visitors by publishing new stories based on their interaction with the application [29].

Another case of virtual touring in a cultural site is the virtual "guide" in Petra, Jordan. As part of the Project Zamani [35], modern techniques of digital monument scanning (3D scanning) were used to create three-dimensional models that complement and "explain" the perception of the site to the visitor. These models were integrated into the digital touring application, creating an interactive virtual landscape with panoramic views of objects and buildings, maps, plans, and other spatial content information. The three-dimensional virtual tour of the archaeological site of Petra is a very important tool for visitors who may not be able to physically visit the specific location, as well as for visitors who wish to plan a future visit or "relive" their recent experience.

Furthermore, the CHES project is a research initiative that spans three museums: the Acropolis Museum in Athens, the Stedelijk Museum in Amsterdam, and the Cité de l'Espace in Toulouse. Its main objective is to enhance the museum experience by providing personalized interactive storytelling, rekindling a sense of exploration and wonder among visitors. This framework leverages personalized data to craft individualized narratives that serve as guides during a museum visit. It employs a range of techniques, including mixed reality and game elements, such as digital storytelling and Augmented Reality on mobile devices [36].

In a similar vein, the EMOTIVE project explores and designs emotionally engaging plot-based narratives that span various genres, such as romance, comedy, and mystery. The project aims to create non-linear narratives that evoke strong emotional responses in people. It distinguishes itself from the CHES program and other similar projects by focusing on personalization, tailoring stories to the unique needs and characteristics of each visitor. Additionally, the project seeks to provide stable narratives that blend online and on-site experiences, catering to users who wish to access content before, during, or after their visit to a cultural site [37].

Also, the TRACCE project centers on narratives written by travelers during the 18th to early 20th centuries. In this project, the narratives are richly illustrated, bringing to life the environments and daily life that each traveler encountered. The TRACCE project has developed a platform that recreates traveler's journey, enabling users to follow his narrative through their personal smart devices. One noteworthy feature of the TRACCE platform is its ability to personalize cultural data based on the user's interests and profile. To achieve this, users are asked to complete a questionnaire. This questionnaire helps match each user with predefined profiles. By considering the user's interests and current location (determined using the GPS sensor on their smart device), the TRACCE platform automatically suggests the most relevant routes. Users can then choose their preferred route, and the platform guides them, starting from the nearest point of interest relative to their exact location [38].

Finally, TRIPMENTOR had the objective of creating a bilingual (Greek and English) mobile tourist guide for the Attica region. This guide was founded on a well-researched tourist typology, incorporating personalized routes and incorporating gamified elements to offer visitors a distinct and memorable experience. The primary goals of the project were to comprehend and address the potential needs of users, gaining insight into their mindsets, to enable users to immerse themselves in the local culture while bridging modern and ancient Greek culture, drawing from both prejudices and stereotypes, and to stimulate interaction and exchange, encouraging visitors to engage with present-day Attica [15,39].

4. Planning a Cultural Route

In accordance with Meyer's observations [16], the commencement of most routes is underpinned by a set of distinct objectives, encompassing:

- The dispersion of tourists and the equitable distribution of tourism-generated income.
- The introduction of hitherto lesser-known attractions and facets into the tourism domain.
- The augmentation of the overall allure of a given destination.
- The extension of tourists' sojourns and a concomitant augmentation in their expenditures.
- The attraction of new tourists while concurrently fostering repeat visitation.
- The promotion and enhancement of the sustainability quotient inherent to the tourism product.

Of noteworthy consideration, the final point underscored by Meyer[16] assumes particular prominence, especially within the purview of cultural tourism and cultural routes. In these contexts, erudite tourists, characterized by their discerning preferences, invariably seek an authentic and participatory cultural encounter, one that pivots on interactions and exchanges with the indigenous populace. Moreover, to augment and complement the recommendations proffered by López Fernández[40], it is pertinent to underscore three key facets, whose significance in the context of planning cultural routes is notably emphasized in scholarly discourse:

- **Collaboration Among Stakeholders:** While tourism destinations may be construed and consumed by tourists as a holistic "brand" comprising an amalgamation of suppliers and services, the practical reality is far more intricate. Numerous actors, encompassing local authorities, private investors, and the local community, as well as various groups and networks of stakeholders, actively participate in the development of tourism within a given locale. They collectively contribute to the creation of both the tourist product and the experiential dimension. In the realm of tourism routes, this actor landscape further expands, especially when different destinations collaborate. Hence, it becomes paramount for all involved parties in the planning and development of a particular itinerary to engage in active cooperation and collaboration, pooling resources, and synergizing efforts while sharing information and expertise. Moreover, the meaningful engagement of one specific actor, the local community, holds the potential to enhance the overall sustainability of the initiative and contribute to the delivery of a more authentic tourism product.
- **Accessibility:** An additional critical factor revolves around ensuring accessibility to the cultural routes.
- **Monitoring:** Finally, the third focal element centers on the ongoing monitoring of these cultural routes to gauge their efficacy and impact.

In summation, the multifaceted nature of the tourism landscape necessitates meticulous attention to collaboration, accessibility, and monitoring as pivotal elements in the orchestration of culturally enriched travel experiences along these routes.

5. Discussion - Conclusion

The purpose of this paper is to ultimately address one of the demands of today's conditions in our country, focusing on forms of tourism that cater to specific motivations. It thus concentrates on one of these forms of tourism that show particular dynamism and prospects for revitalizing our national tourism product, and that is cultural tourism. The modern tourist, as revealed by the results of our research, presents a variety of motivations. Therefore, destinations must necessarily offer complex tourism experiences enriched with alternative activities that differentiate from the classic model of mass tourism.

Visitors, as a whole, seek both entertainment and a learning (or broader educational) experience. This requirement necessitates enhancing the interpretative perspective of cultural applications in tourism at the core of the planned public and private interventions. Additionally, cultural tourism is perceived in the broader sense of the tourism industry, including the methods and technologies serving the acceptance, understanding, experience, diffusion, protection, and preservation of natural and cultural resources, as well as the conduct of activities that adhere to international tourism standards. Therefore, a primary goal of cultural tourism is to enable every traveler to become a kind of cultural anthropologist.

Finally, the general components of cultural tourism, can be defined both based on tourism conducted for cultural purposes and as a high-quality service technology conforming to international tourism standards and the methodology of presenting natural and cultural heritage to the public. The primary research conducted, in combination with the literature review, has shown that the cultural and natural wealth of a region rich in cultural heritage can serve as a comparative advantage for modifying

the tourism product and developing cultural tourism using cultural routes as a tool. The use of tools and applications for highlighting cultural heritage is expected to attract visitors with special interests, extend the tourist season in each respective area, and generate economic, social, and cultural benefits by leveraging human potential and improving the quality of life in local communities. Simultaneously, the incorporation of cultural assets into contemporary social life through the implementation and operation of cultural routes will protect and promote cultural heritage. Therefore, the encouragement of partnerships between cultural and tourism stakeholders is expected to boost growth and contribute to the fundamental principle of sustainability: the reinvestment of development.

However, to carry out this endeavor, the difficulties and problems that may arise must be overcome, such as the absence of a strategic tourism development plan by several local authorities, frequent lack of interest from the local community in the utilization and protection of cultural heritage, coupled with a frequent lack of collaboration between the local community and relevant archaeological services.

In conclusion, the application of these technologies in infrastructure development proves to be one of the main goals and characteristics of cultural tourism. As such, we can proceed with the design of tours that promote culture and the value of monuments, contributing to an infrastructure of supply that caters to different types of demand. This, in turn, will support the fundamental principle of sustainability: development reinvestment.

6. Challenges and Limitations

Designing successful cultural routes, especially those that highlight the literary tradition and heritage of a region, depends on multiple parameters. As emerges from the relevant literature, there are various issues that need to be resolved. One significant problem faced by several modern applications, particularly critical in the case of a cultural-touristic application, is the lack of intercultural design.

A digital guiding application is inevitably used by users from diverse cultural backgrounds to a degree where the application's interface may appear unwieldy or even unpleasant to specific user groups. Therefore, beyond the necessary choice of an appropriate user interface language and the available information and media provided by the application, the general design philosophy that permeates the entire functionality of the application should adapt to the requirements of the respective cultural groups. Other considerations that must be taken into account include the digitization of available information and sources, particularly in a format suitable for further processing and presentation using new technologies.

Moreover, the well-known "cold start problem" meaning the inability of a system to generate effective output data due to insufficient input data, is a critical parameter in personalized information delivery functions [40]. This difficulty hinders the immediate and effective recognition of user interests and profiles. As a result, similar functions may fail initially or request a lot of information from the user at the beginning of the digital journey, which may not always be pleasant for visitors eager to start their exploration. Additionally, although today the average visitor to a destination is technologically savvy, there may be user groups that lack the appropriate technological training. Therefore, providing indicative training or offering assistance and explanations during application use are generally essential and helpful tools. Finally, obstacles to the smooth operation of a digital cultural route and, consequently, to the overall user experience could also be technical issues related to the user's device. For example, a lengthy route with rich multimedia content may place significant demands on battery consumption or device connectivity.

In conclusion, designing cultural routes and applications that cater to diverse cultural backgrounds involves addressing issues related to intercultural design, adapting the design philosophy to different cultural groups, digitizing information appropriately, considering the "cold start problem," and providing technical support for users with various levels of technological proficiency. These considerations are essential for creating a successful and user-friendly cultural experience.

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Abbreviations

The following abbreviations are used in this manuscript:

| | |
|-----|--------------------------|
| CR | Cultural Routes |
| CH | Cultural Heritage |
| HM | Heritage Management |
| CT | Cultural Tourism |
| CUX | Cultural User eXperience |

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