

Cultural heritage sports tourism design opportunities: a bibliometric analysis

Oportunidades de diseño turístico del patrimonio cultural deportivo: un análisis bibliométrico

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Abstract. The development of cultural heritage sports tourism requires collaboration from the government, communities around cultural heritage, academics, and stakeholders. The implementation of cultural heritage sports tourism has been carried out by many researchers around the world. This research was conducted to provide a review of cultural heritage tourism that has been carried out and to find out future research gaps related to cultural heritage sports tourism. Harzing's publish or perish software, Mendeley Desktop, and VosViewer were used to sort and identify gaps in this research. A total of 1069 articles from 2014 to 2024 from the Scopus, Web of Science, and PubMed databases were reviewed according to a predetermined review. The review included cluster information, impact factors, types of activities, research findings, and gaps for future research. The results showed that there were eight cluster groups in the resulting analysis with seven keywords that had a high impact factor. The keywords that have high impact factors are revisiting intention, digitalization, game-based learning, location-based applications, surveys, circular economy, and immersive technologies. The findings in this study are that the development of cultural heritage attractions needs to consider visitor expectations, the content presented, government involvement, and promotion. The development of cultural heritage sports tourism has great potential.

Keywords: bibliometric analysis, sport tourism, cultural heritage, future research

Resumen. El desarrollo del turismo deportivo del patrimonio cultural requiere la colaboración del gobierno, las comunidades en torno al patrimonio cultural, el mundo académico y las partes interesadas. La implementación del turismo deportivo del patrimonio cultural ha sido llevada a cabo por muchos investigadores en todo el mundo. Este estudio se llevó a cabo para realizar una revisión del turismo del patrimonio cultural que se ha llevado a cabo y para averiguar las futuras lagunas de investigación relacionadas con el turismo deportivo del patrimonio cultural. Se utilizaron el software publish or perish de Harzing, Mendeley Desktop y VosViewer para clasificar e identificar las lagunas de esta investigación. Se revisaron un total de 1069 artículos de 2014 a 2024 de las bases de datos Scopus, Web of Science y PubMed de acuerdo con una revisión predeterminada. La revisión incluyó información sobre clusters, factores de impacto, tipos de actividades, resultados de la investigación y lagunas para futuras investigaciones. Los resultados mostraron que había ocho grupos de conglomerados en el análisis resultante con siete palabras clave que tenían un alto factor de impacto. Las palabras clave que tienen factores de impacto elevados son intención de volver a visitar, digitalización, aprendizaje basado en juegos, aplicaciones basadas en la localización, encuestas, economía circular y tecnologías inmersivas. Las conclusiones de este estudio son que el desarrollo de las atracciones del patrimonio cultural debe tener en cuenta las expectativas de los visitantes, el contenido presentado, la participación del gobierno y la promoción. El desarrollo del turismo deportivo del patrimonio cultural tiene un gran potencial.

Palabras clave: análisis bibliométrico, turismo deportivo, patrimonio cultural, investigaciones futuras

Fecha recepción: 05-07-24. Fecha de aceptación: 25-09-24

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Introduction

Tourism is a sector that has the potential to be developed to improve the economy (Tiku & Shimizu, 2020). Tourism development can be done through several forms, such as religious tourism, cultural heritage tourism, and sports tourism (Erdem & Akin, 2024; Higham & Hinch, 2018; Navarrete, 2019). Sports tourism is an activity carried out by doing sports activities in tourist attractions, both natural tourism and cultural heritage tourism (de Oliveira et al., 2024; Saputra et al., 2023). Sports activities carried out at tourist attractions as primary and secondary destinations provide their attraction for tourists to visit (Guntoro et al., 2023; Martins et al., 2024). Cultural heritage tourist objects have their charm to be visited (Weng et al., 2019). Cultural heritage heritage is a symbol of the glory of ancient society that needs to be preserved (Zhang et al., 2023). The development of sports-based cultural heritage attractions requires several considerations, such as laws and regulations, government policies, risk management, human resource capabilities, sponsorship, forms of activities, and promotion (Ma & Su, 2024; Ríos et al., 2024;

Wailmi et al., 2024). The government has the authority to preserve and develop cultural heritage to be utilized without causing damage (Hu et al., 2022). So in the development of cultural heritage sports tourism, the development team will get supervision from the government (Mzembe et al., 2023; Su, 2020).

The quality of the cultural heritage sports tourism design development team also plays an important role in producing an effective design. Effective in the sense that it provides benefits for the government, the community, and the development team. The development team needs to have high creativity to produce innovations (Prayitno et al., 2024; Tapfuma et al., 2024). Innovation in the form of activities that follow the environmental conditions and conditions of cultural heritage tourism objects. The development team also needs to have many relationships to get sponsors who can help the development process in terms of finance (Arumugam et al., 2023; Romero-Castro et al., 2023a). In addition, the ability to promote the developed sports tourism design is also needed by the development team (Arumugam et al., 2023). This is done so that the sports tourism design developed is known by the general public in a wider

scope (Casillo et al., 2020).

The development of sports tourism in cultural heritage tourism objects has not been widely developed. So the development of cultural heritage sports tourism design has a high opportunity to be developed and the level of research novelty will be even greater (Malchrowicz-Mośko & Poczta, 2018). By looking at the implementation of cultural heritage tourism around the world, researchers will find research results that can be studied more deeply. (Dabphet, 2023; Fanini et al., 2023; Muangasame & Tan, 2023; Santoso, 2024). This research was carried out to conduct a review of the forms of cultural heritage tourism that have been carried out and to find out future research gaps related to cultural heritage sports tourism through a literature study. Bibliometric analysis is used by many researchers because with bibliometric analysis researchers can synthesize differences in various research topics according to disciplines by entering keywords (Li et al., 2023). In addition, the results of the analysis can be seen mapping between related topics and through the resulting nets, researchers can find future research opportunities (del Río-Rama et al., 2020). Bibliometric analysis has good analytical results, so the literature study was conducted using bibliometric analysis (Graziano & Privitera, 2020; Rudan, 2023). Research findings and gaps are very important for researchers to know as a first step in the development of cultural heritage sports tourism design in Indonesia. The design of cultural heritage sports tourism design is one of the efforts made by the Indonesian government to promote cultural heritage tourism objects to the public at home and abroad. It is hoped that the design that will be developed can be applied and commercialized, so that tourist visits will increase. Increased tourist visits will generate new jobs and innovations that will have a positive impact on the community's economy. Good economic conditions will ultimately have a positive impact on the quality of life and public health. Therefore, researchers conducted an analysis of research trends related to cultural heritage sports tourism to find mapping and development opportunities for cultural heritage sports tourism design.

Methods

This study aims to review research on cultural heritage tourism and find out opportunities for the development of cultural heritage sports tourism. A literature review with bibliometric analysis is used in this research.

Database source

The databases used in this study were Scopus, Web of Science (WoS), and PubMed. Scopus and Web of Science (WoS) databases are used because articles published in Scopus-indexed journals provide comprehensive data sources, reliable findings, and a high impact factor. Web of Science (WoS) is a database that includes tens of thousands of scientific journals that have high standards in publication. High standards allow articles in these journals to be of very good

quality. By using the WoS database, researchers can analyze the latest scientific opportunities and content and develop world-class articles. PubMed database is widely used by researchers as a reference source in sorting articles because it can be accessed for free and has fast online updates. Articles from the PubMed database also have good impact factors in reputable international journals.

Harzing publish or perish

Harzing Publish or Perish is a software used to analyze research performance, identify research topics, and find comprehensive journals. The databases provided consist of Scopus, web of Science (WoS), Google Scholar, PubMed, Crossref, and OpenAlex. With this software, researchers can sort articles according to the desired keywords and databases.

Mendeley desktop

Mendeley Desktop is a reference and academic document management application that is often used by students and researchers. By using this application, researchers can collect and organize references more efficiently.

VosViewers

Vosviewer is a software used to create maps based on networks related to the main keywords and visualize the networks formed. The network is formed in the form of scientific publications, scientific journals, researchers, research organizations, countries, and keywords. Each item in the network can be connected through co-authorship, co-occurrence, citation, and co-citation merging. To build the network, reference files are required from databases such as Scopus, web of Science, Pubmed, Google Scholar, Crossref, and others.

Procedure

Researchers use publish or perish hazing to sort articles. Furthermore, researchers determine the database that will be used to sort articles according to the topic to be studied. The databases used in this study come from the Scopus, Web of Science, and PubMed databases. The keywords used were "cultural heritage tourism" from keywords in the abstract from article published from 2014 to 2024. The total number of articles sorted was 1069 articles consisting of 651 articles from the Scopus database, 317 articles from the Web of Science database, and 101 articles from the PubMed database. The article references that have been found are then saved in RIS format. The reference file in RIS format was then inputted into the Mendeley desktop application to complete the reference data and sort the articles in stage two. 199 duplicate articles were found, 84 articles with incomplete information, 68 articles that did not fall under the main topics of the criteria and 39 document types that were filtered out as non-articles were eliminated. The final 679 relevant articles were analyzed using VosViewers. Analysis using VosViewers aims to determine network visualization, overlay visualization, and density visualization. The resulting

visualization is in the form of a topic network map according to the cluster group. Cluster groups are indicated by the color of the net on each related keyword. The longer distance of the net from the main keyword indicates a distant relationship, and conversely. Through this analysis, researchers can also see the topics that are widely studied and the impact factor of the topics studied. Topics that have high impact factors will then be analyzed more deeply to find out the findings and gaps in research that can be used as future research topics. The research procedure is shown in Figure 1.

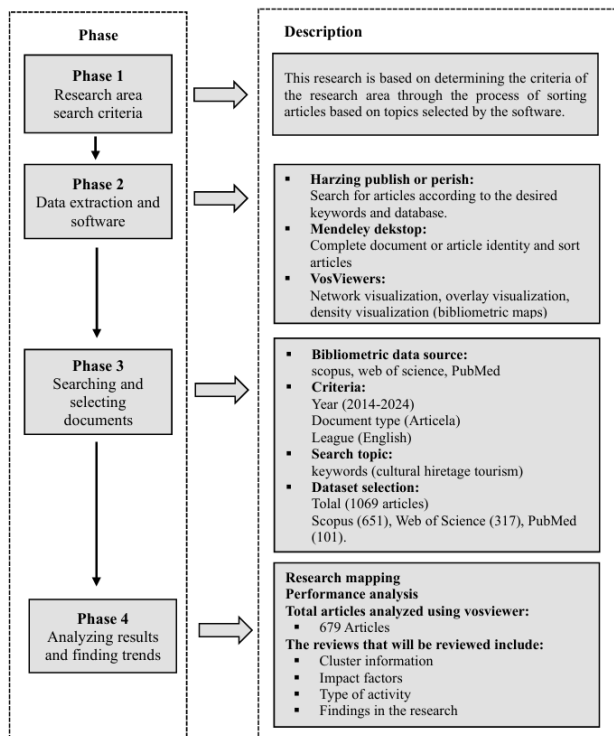


Figure 1. The research procedure

Results

The analysis results using VosViewer produce network visualization, overlay visualization, and density visualization. Network of keyword topics in articles that are interrelated based on cluster groups. Network visualization illustrates cluster groups that can be seen in the colors of the related nets. Overlay visualization illustrates the impact factor that can be seen from the color group of keywords. Density visualization describes the density of research that discusses the topic which can be seen from the size of the point. A more detailed description can be seen in the following sub-chapters:

Cluster Groups

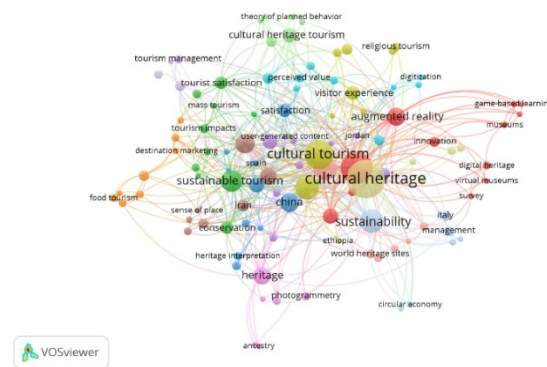


Figure 2. Network visualization

Based on the analysis, there are eight clusters grouped by net color. The first cluster is a cluster group with a yellow net color. The first cluster is a cluster group with a yellow net color with the main keyword cultural heritage with the largest dot. The second cluster is a cluster group with a red net color. The second cluster is a group of clusters with a red net color with the main keyword tourism with the largest dot. The third cluster is a cluster group with a blue net color. The third cluster is a group of clusters with a blue net color with the main keyword sustainability with the largest dot. The fourth cluster is a cluster group with a green net color. The fourth cluster is a group of clusters with a green net color with the main keyword sustainable tourism with the largest dot. The fifth cluster is a cluster group with a purple net color. The fifth cluster is a group of clusters with a purple net color with the main keyword user-generated content with the largest dot. The sixth cluster is a cluster group with an orange net color. The sixth cluster is a group of clusters with an orange net color with the main keyword destination marketing with the largest dot. The seventh cluster is a cluster group with a brown mesh color. The seventh cluster is a group of clusters with a brown net color with the main keyword sustainable development with the largest dot. Cluster eight is a cluster group with a dusty pink net color. The eighth cluster is a group of clusters with a dusty pink net color with the main keyword heritage with the largest dot. The keywords connected to each net in each cluster with medium and small dot sizes indicate the frequency of the most studied keywords. While the distance of keywords that are far from the main keyword in each cluster net indicates a distant relationship. Each element in each cluster group can be seen in Table 1 and the cluster distribution can be seen in Figure 2.

Table 1. Elements in each cluster

NO	Cluster	Element
1	The first cluster (yellow)	Cultural heritage, cultural tourism, authenticity, visitor experience, Ethiopia, natural heritage, willingness to pay, bibliometric analysis, Kazakhstan, social media, cultural ecosystem service, religious tourism, Islam
2	Second cluster (red)	Tourism, heritage tourism, tourism marketing, virtual reality, innovation, game-based learning, digital storytelling, museums, digital heritage, virtual museums, surveys,
3	The third cluster (blue)	Sustainability, world heritage site, china, community-based tourism, social entrepreneurship, heritage interpretation, creative tourism, Spain, responsible tourism, Latin America, satisfaction, structural equation model, perceived authenticity, perceived value, revisit intention, Thailand, covid-19, digitization, digitalization, digital transformation.
4	Fourth cluster (green)	Sustainable tourism, conservation, development, stakeholders, UNESCO, tourism impacts, mass tourism, dark tourism, tourist

Table 1.

Elements in each cluster

NO	Cluster	Element
		behavior, cultural heritage tourism, existential authenticity, travel intention, theory of planned behavior, objective authenticity, constructive authenticity.
5	Fifth cluster (purple)	Destination image, user-generated content, gastronomy, Petra, Jordan, content analysis, tourist experience, wine tourism, cultural landscapes, heritage, immersive technologies, photogrammetry, tourism experience, local community, conservation, tourism planning, tourism management
6	Sixth cluster (orange)	Japan, food tourism, regional development, nostalgia, intangible heritage, destination marketing, market segmentation, destination loyalty,
7	Seventh cluster (brown)	Sustainable development, rural tourism, Iran, sense of place, cultural ecosystem service, tourism development, nature-based tourism
8	Eight (dusty pink)	Heritage tourism, tourism destination, cultural sustainability, heritage preservation, world heritage sites, resident

Impact factor

The analysis results using VosViewer also present the impact factor for each keyword group. Based on Figure 3, we can see the division of the impact factor with numbers one to three. The purple color shows the lowest impact factor, the green color shows a medium impact factor and the yellow color shows a high impact factor. The distribution of keywords on each impact factor can be seen in Table 2.

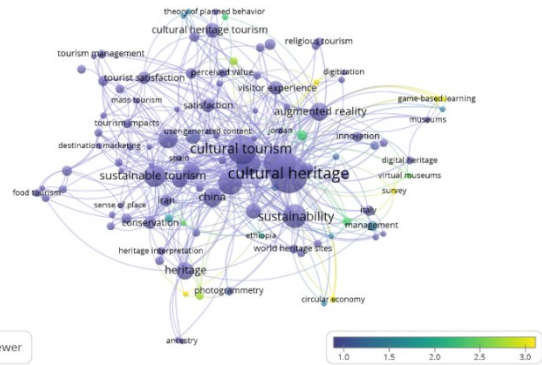


Figure 3. Overlay visualization

Table 2.

Impact factor grouping

No	Impact factor	Element
1	Low	Cultural heritage, cultural tourism, authenticity, visitor experience, ethinopie, natural heritage, willingness to pay, bibliometric analysis, kazakhstan, social media, cultural ecosystem service, religious tourism, islam, tourism, heritage tourism, tourism marketing, virtual reality, augmented reality, innovation, game-based learning, digital storytelling, digital heritage, survey, world heritage site, china, community-based tourism, social entrepreneurship, heritage interpretation, creative tourism, spain, responsible tourism, latin america, satisfaction, structural equation model, perceived authenticity, perceived value, thailand, digital transformation, sustainable tourism, conservation, development, stakeholders, unesco, tourism impacts, mass tourism, dark tourism, tourist behaviour, cultural heritage tourism, existential authenticity, travel intention, theory of planned behavior, objective authenticity, constructive authenticity, destination image, user-generated content, gastronomy, petra, jordan, content analysis, tourist experience, wine tourism, cultural landscape, heritage, photogrammetry, tourism experience, local community, geoconservation, tourism planning, tourism management, japan, food tourism, regional development, nostalgia, intangible heritage, destination marketing, market segmentation, destination loyalty, sustainable development, rural tourism, iran, sense of place, cultural ecosystem service, tourism development, nature-based tourism, heritage tourism, tourism destination, heritage preservation, world heritage sites, resident.
2	Medium	Covid 19, museum, travel intention, cultural sustainability, virtual museum, digital twins, social entrepreneurship
3	High	Revisit intention, digitalization, game-based learning, location-based applications, survey, circular economy, immersive technologies,

Density visualization

Density visualization shows the visualization of item density. Each point on the keyword distribution visualization has a color that indicates the density of research that has been done. Based on Figure 4 above, the available colors are blue, green, and yellow. The more research that studies a topic, the closer the color of the point on the topic is to yellow. Conversely, the less research that studies a topic, the closer the color of the topic is to blue.



Figure 4. Density visualization

Research findings

Keywords or items with high impact factors were analyzed more deeply to describe the findings and find gaps and future research opportunities. The distribution of topics or

items that have high impact factors that will be studied in more depth are revisited intention with 5 articles, digitalization with 9 articles, game-based learning with 2 articles, location-based applications with 2 articles, surveys with 2 articles, circular economy with 2 articles, and immersive technologies with 2 articles. The findings on each topic that is analyzed more deeply will be presented in the following subchapters:

Revisit intention

The desire to return to visit a tourist attraction is influenced by several things, such as visitor expectations, attachment, values offered, and memorable experiences (Syarif & AS, 2023; Zhou et al., 2023). Visitor expectations are a desire or expectation that visitors have. Expectations in the context of this study knit on visitors' expectations of the tourist attractions visited. Expectations arise because of the description of tourist attractions promoted through social media and print media. Attachment to a tourist attraction for the impression on the first visit can be a reason for tourists to visit again (Peng et al., 2023). Attachment can be in the form of unification with nature or other attractions that have harmony with oneself. The values offered include the values contained in the tourism activities offered. The values offered can be explicit or implied to produce a memorable experience for visitors (Su, 2020). With the impression gained on the first visit, visitors have the potential to visit again on another occasion (Damanik & Yusuf, 2022).

Digitalization

Digitalization of tourist attractions is marked by the promotion of tourist attractions through social media (Madzik et al., 2023). The forms of promotion carried out are diverse and unique. The uniqueness of each promotion is the main attraction for the community when they see the promotion. Apart from being used for promotion, digitalization is also used to offer virtual tourist visits (Muangasame & Tan, 2023; Navarrete, 2019). Virtual visits are mostly carried out on museum tourism objects. The benefits obtained from the digitization of tourism are widely felt by tourist attraction managers and the surrounding community (Cuomo et al., 2021; Zollo et al., 2022). The surrounding community can promote their products to visitors, both directly and online (Navarrete, 2019). That way the community's economy will experience an increase (Tiku & Shimizu, 2020).

Game-based learning

Game-based cultural heritage education also plays an important role in cultural heritage preservation. Education in the form of games has a special uniqueness that can attract public interest in learning about cultural heritage. Tourist interest increases memorable experiences and attachment to a place which creates a desire to revisit cultural tourism destinations (Peng et al., 2023). Destination management and marketing are needed in future research.

Location-based applications

Location-based augmented reality applications are applications used to educate the public regarding cultural heritage (Kleftodimos et al., 2023; Madzik et al., 2023). With this application, it will be easier for people to know the history behind cultural heritage (Walmsley & Kersten, 2020). No less than augmented reality, The application of projection mapping (PJM) technology, projection displays, and interactive programs at cultural heritage sites is the use of technology to increase visitor attractiveness (Li & Ito, 2023). Another findings suggest that phygital rural cultural heritage strategies can facilitate interconnectivity between physical and digital dimensions, thereby enhancing the intrinsic value, meaning, and perception of the experience. Community-based phygitalization strategy recommendations require planning, development, implementation, and management of rural cultural heritage tourism products (Muangasame & Tan, 2023).

Survey

Supervision of the implementation of cultural heritage tourism is carried out by the government (Ma & Su, 2024). Supervision is carried out to keep cultural heritage from being damaged in the preservation and development of cultural heritage activities for the benefit of society (Hu et al., 2022). Cultural heritage that has high historical value is maintained and preserved following applicable regulations. This preservation is done so that future generations can know the story behind cultural heritage, as material for self-reflection (Su, 2020). The elements of preservation of tangible and intangible assets, community participation in cultural heritage management, freedom of access, cultural appreciation, and preservation for future generations are the basic elements of cultural heritage sustainability (de Oliveira et al., 2024).

Circular economy

The economic circle is found in sports tourism objects. The existence of a tourist attraction raises several needs for services and accommodation (Tiku & Shimizu, 2020). Many tour provider services at tourist attractions have sprung up with the existence of promotional platforms in digital form (Mazik et al., 2023). Offers in the form of tour packages with various classes are provided to facilitate first-time visitors (Navarrete, 2019; Tapfuma et al., 2024). In addition to services, lodging providers, vehicle rentals, and souvenir providers are also included in the tourism economy circle. The facilities and services needed by visitors will be a source of income for tourist attraction managers, communities, and governments (TO, 2023). With a promising source of income, the economy of the community and region will increase (Qwatekana & Tshikovhi, 2024; Wailmi et al., 2024).

Immersive technologies

Eight trend topics of technology application in cultural

heritage: 3D cultural artifact reconstruction, digital heritage, virtual museum, user experience, education, tourism, intangible cultural heritage, and gamification (Boboc et al., 2022). Virtual Reality (VR) and 3D documentation and modeling technologies are evolving into increasingly powerful tools for various applications in architecture, monument preservation, conservation/restoration, and cultural heritage presentation (Walmsley & Kersten, 2020). The experience that tourists undergo when visiting cultural heritage tourism using virtual tour-based tourism products has a positive impact. The destination marketing used is appropriate for promoting destinations, thus encouraging innovation in entrepreneurship (González-Rodríguez et al., 2020).

Gaps for future research

The development of cultural heritage attractions needs to consider visitor expectations, the content presented, government involvement, and promotion (Brovina & Sallaku, 2024; Ma & Su, 2024; Tiku & Shimizu, 2020). The promotion of cultural heritage tourism has entered the digital era, and the use of social media and several applications used to conduct virtual destinations have been developed (Cuomo et al., 2021; Zollo et al., 2022). Activities offered include religious activities, cultural introductions, and cultural heritage rejuvenation activities (TO, 2023; Zhou et al., 2023). Cultural heritage tourism activities with a sports approach have been mentioned in a few articles, but they are limited. This opens up a great opportunity to develop the design of cultural heritage sports tourism. Sports activities offered also vary, such as contemporary sports, achievement sports, and traditional sports (Martínez et al., 2023; Peng et al., 2023; Purwanto & Perdani, 2023). The selection of traditional sports in cultural heritage tourism activities has the same theme of suitability (Santos et al., 2023). This similarity can be seen from the form of activities and attractions which are relics of history. In the process of developing cultural heritage tourism is recommended to collaborate with the government that has the authority over the preservation and development of cultural heritage tourism (Hu et al., 2022). In addition to the government, several experts such as sports experts, cultural and historical experts, event experts, tourism experts, management experts, and marketing experts need to be involved. So the resulting design is the result of input from various multidimensional sciences.

Conclusion

There are eight cluster groups in the resulting analysis with seven keywords that have high-impact factors. The keywords are revisited intention, digitalization, game-based learning, location-based applications, surveys, immersive technologies, and and . In the application to support the economy, it is important to apply the concept of circular economy to cultural heritage tourism, with special emphasis on the role of stakeholders in creating sustainable cultural heritage tourism. In addition, the findings of this study also

show that in the implementation of the development of cultural heritage tourism objects, it is necessary to consider visitor expectations, the content presented, government involvement, and promotion. Visitor expectations are influenced by the promotion presented by the tourist attraction manager, so that in promoting it is very important to describe the actual situation. From the overall findings, it can be concluded that the development of cultural heritage tourism needs to consider many things and there needs to be collaboration from various academics, practitioners and government support. The development of cultural heritage sports tourism has great potential for future research directions in Indonesia, considering that Indonesia has a lot of cultural heritage spread throughout Indonesia. In its development it is very important to consider local wisdom, local community involvement and local government policies. The many issues that need to be concerned in the development of cultural heritage tourism in the past research can be taken into consideration in the development of cultural heritage sports tourism in Indonesia as an implication of this research.

Acknowledgements

The research team would like to thank the Ministry of Education, Culture, Research and Technology (KEMENDIKBUDRISTEK) for research funding through the Directorate of Research, Technology and Community Service (DRTPM) with with master contract number 072/E5/PG.02.00.PL /2024 and derivative contract number T/105.1.29/UN34.9/PT.01.03/2024. The research team would also like to thank the Directorate of Research and Community Service (DRPM) of Yogyakarta State University for accommodating the submission process to the final report process in the 2024 research and community service grant program.

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