

People-centred natural language processing for cultural tourism market: a research agenda

Mohamed W. Fareed¹ and Mohamed Amer²

¹ *Research Assistant at the Department of Architectural Engineering, University of Sharjah, United Arab Emirates*

² *PhD in Heritage Marketing and Sustainable Cultural Tourism, Roma Tre University, Italy; ICOMO-ICTC Member*

Abstract

Cultural heritage is a significant resource of knowledge that allows us to inform about and enhance such communities in the cultural tourism market. In this respect, it is important to explore, with the enhancement of cultural identity, by adopting a people-centred approach that matches the needs and wants of various segmentations of the visitors, the host community, and the heritage site. The research aims at introducing a proposed Natural Language Processing framework by adopting a grounded theory-based research agenda. The proposed framework suggests points of interest and related services enhancing the experience of the heritage site's visitors along with three phases: (1) a pre-visit to set the level of expectations and satisfaction (need and wants) and ensure a high quality of respect a cultural diversity; (2) an in-situ-visit to boost the interaction between the visitors' mentality and the manifestations of the site's cultural identity; and (3) a post-visit to valorise positive word-of-mouth and create a lifelong learning memory.

Keywords

People-centred Approach, Natural Language Processing, Cultural Tourism

1. Introduction

Rapid globalization and modernization are slowly deteriorating cultural identity (CI) posing a great challenge to the unique manifestations of heritage sites (HSs). Subsequently, a place attachment, or Sense of the Place [43], for Indigenous/local community, is deteriorating. Respectively, the sense of loyalty or emotional rapport, for the visitors, might continue to decrease. Therefore, sustainable cultural tourism (CT) development becomes a major international request or an increased strategic tool for tourism attractions and its communities to preserve and transmit effectively heritage values for future generations [40].

The customisation-based marketing commands competition, rather than collaboration, which may threaten the tangible heritage forms and intangible cultural heritage expressions (ICH), as well as the loss of authentic community-held cultural knowledge. Moreover, the tourism market mostly renders cultural landscapes as semi-customized products valorising the role of publicity, impacting negatively the conservation mandate of the cultural asset. Understanding how the marketing strategy impacts the heritage site (HS)'s conservation condition is necessary. Numerous HSs around the world cannot express their CI [4].

VIPERC 2023: The 2nd International Conference on Visual Pattern Extraction and Recognition for Cultural Heritage Understanding, September 25-26, 2023, Zadar, Croatia

✉ mw.fareed@gmail.com (M. Fareed); mohammadbadry2013@gmail.com (M. Amer)

🆔 0000-0003-0195-7368 (M. Fareed); 0000-0003-1471-3856 (M. Amer)



© 2023 Copyright for this paper by its authors.
Use permitted under Creative Commons License Attribution 4.0 International (CC BY 4.0).
CEUR Workshop Proceedings (CEUR-WS.org)

The management team of HS should reformulate its interpretation methods. They might provide traditional culture-based services, respectively HS might upgrade the targeted visitors. Respectively, it should concern the significance of the cultural mentality of HSs' visitors, not only to focus on the level of their satisfaction, especially during the high seasons. [18, 19] Accordingly, and in line with Burra Charter of Places of Cultural Significance (2013), and Convention on the Value of Cultural Heritage for Society - Faro Convention (2005), the research adopts a people-centred approach that acknowledges the community as a generator of CI and integrates it as a fundamental pillar that contributes to a site's 'genius loci' and 'sense of a place'. Thus, operationalizing a people-centred approach to Natural Language Processing (NLP) could effectively protect and transmit the living heritage manifestations of the communities. This approach ensures that the future generations hold their CI over a span of time in their lifelong learning memory and also, in the long-term memory or nostalgia of the visitors.

While some related works have explored NLP in various contexts, there is a lack of comprehensive research that specifically focuses on using NLP to protect and transmit the living heritage manifestations of communities, especially in low-carrying capacity, scattered, or less-known HSs. The research aims to fill this gap by developing a deductive NLP framework that enhances the visibility of local HSs, fosters community relevance, and connects deeply with cultural contexts, ultimately offering a sustainable approach that balances commercialization and authenticity. We seek to create an engaged and personalized visitor experience, ensuring the preservation and celebration of CI while addressing the limitations of existing strategies in CT market. To achieve its aim of examining how NLP might disseminate CI manifestations to improve the visitor experience, and sustainably manage the cultural knowledge of HSs where the communities still live, it might be considered as a research agenda. It proposes a new framework that might be applicable and serve the local HSs that are small, scattered, invisible, and probably not well-known.

In sum, the research seeks to use NLP technology as a vital tool for them to become more distinctive and visible to local and international visitors, relevant to the community, and connected to the cultural contexts. Respectively, it distills core values and interprets them into coherent action, so that everything embodies the place's CI. It bridges HS to distinctive values, meanings, and emotions. It amplifies visibility, uniqueness, and loyalty. As a proposed conservation tool and suiting the high numbers of visitors, the proposed NLP framework seeks to avoid the negative impacts of the commercialization and customization approaches and stay in between. It is directed towards creating an engaged visit experience. Respectively, it will be a kind of respect for a place's authenticity, participative, oriented to social impact, and attentive to sustainability. Thereby, the research explores the challenges and opportunities which are associated with using NLP techniques for CT market and how these might develop personalized and interactive itineraries.

2. Theoretical Framework

In this section, the research draws theoretically the main features of a proposed framework by reviewing multidimensional practices in CT and NLP. By doing so, first, it addresses the fundamentals of CT with a focus on the current needs of HSs where the community still lives promoting a people-centred approach. It enhances the positive word-of-mouth referring to the current NLP practices in the tourism industry and how we may valorise.

2.1. Culture Tourism Market: Visitor Services and Mentality

Tourism is a global force that might negatively affect the unique value of social practices and their creations as well as authentic heritage spots. [24] The negative impact of mass tourism and heritage consumption on HSs and communities has been investigated in many studies from a sociocultural perspective. [14, 52] Subsequently, it might require more comprehensive data that contribute to reformatting CT synergies and reorienting its policies and designs. [58] Subsequently, UNWTO defined CT as a tourism activity that doesn't only include consuming tangible heritage and ICH assets but also the sociocultural experience of the visitors at HSs and the meanings they ascribe to it. [59] Thus, the visitors are interested in enriching and enhancing their experience by exploring HS they

visit. It might refer to an interdisciplinary IMPACTOUR¹ project as a good practice. It contributes to generating innovative and easy-to-use methodologies. These generated methods aim to estimate and analyse CT's socioeconomic impact on European development. Regarding, it might develop CT policies and practices, and enhance its sustainable role [34].

Along with upgrading the level of production and consumption, 40% of international tourism is oriented to CT which is estimated as a wide sector to further grow up looking for cultural experiences based on tangible heritage attractions and the diverse traditional practices, lifestyle, and culture. [38, 47, 51, 58] In a competitive international tourism market, HSs face many obstacles. Some HSs are globally well-known and attract a high number of visitors, while these HSs aren't fully integrated with its authentic CI, especially through its edutainment services and facilities. Thus, the well-managed CT-based activities are an income-generative and innovative socioeconomic approach to adaptively reuse unique natural and cultural assets in abandoned historic spaces. These activities can preserve cultural asset(s) by providing multi-functionality on ecological, social, cultural, and economic grounds with less negative impacts on the host communities and slower/controlled modifications in the local economy. This could provide an authentic tourism experience with respect to the heritage community [25, 32].

In 2015, [26] defined *Smart Tourism* as integral tourism at a place to gather data, which covers the feedback about the physical infrastructure and social relations from the governmental entities and individuals. Using advanced technology to enrich the visitors' experience, these data might represent these data as a reference of on-site experience and valuable proposals for the local interpreters. Therefore, with the emergence of new business models' platforms in the tourism sector, the modern applied approaches benefited from the developed techniques which contribute to transforming the invisible into the visible and providing effectively the governments to monitor and gather a group of insights, feedback, and possibilities, subsequently, to make better decisions [48].

Guiding by the Swedish experiment to enhance sustainable CT, CHRISTA², in cooperation with the administration of nature and cultural heritage for *Västra Götaland* region (VGR), initiated a project *Västarvet*. Jointly with other key stakeholders, this project developed a long-term histocultural participatory platform *Prisma* as a common resource for sharing knowledge. This platform aims to review the communities and their culture, stories, livelihoods, industries or crafts, and attractions. It is a wide digital database for heritage and social development in VGR since 1850. It informs the visitors about the details of alternative HSs and keeps the visitors updated on the scheduled events. It provides the participatory context among the public and private actors of the regional soft infrastructure, e.g. tourism and cultural services. Marketing VGR HSs to Swedish, Nordic states, or international markets, *Prisma* contributes to raising the quality of visits by investing in/toward sharing word-of-mouth, and upgrading the level of place attachment, and stewardship for the local community [30].

Respectively, valorising e-word-of-mouth to enhance the tourism image and boost brand awareness, the international agencies start, from the mass tourism perspective, to invest the shared e-knowledge orienting the decision-making of the international visitors to HSs and increasing their tourism demand by using various dynamic platforms, social network devices (e.g. *by uploading hash-tagged photos of tourism destinations on social media*) and digital applications. Thereby, these agencies may increase their reputation and expenses, and decrease the cost of marketing. Additionally, they target to interact directly with those visitors recognizing their needs and wants, and centralizing the cultural aspect. The visitors contribute to sharing impressive knowledge and creating smart spaces to personalize the offered programs and services. Recognizing the importance of the tourism experience, visitors lately play an active role in that they are the focal point or a technical rapport between the cultural content of the developed itineraries and their shared personal content. Thus, they provide the visitors' satisfaction by offering effectively the best on-site services, facilities, and amenities [5, 12, 13, 34, 60].

Providing the aforementioned context with some instances, [12] proposed a *Content Application Program Interface Economy Platform* that permits *content-generating actors (organizations such as heritage spaces, museums, communities, or individual users) and content users (authorities, services providers, or final users) to operate*. This platform provides highly accessible and knowledgeable content *through the automatic composition*

¹ EU Horizon 2020 Project *Improving Sustainable Development Policies and Practices to Assess, Diversify, and Foster Cultural Tourism in European Regions and Areas* (IMPACTOUR) (2020 - 2022)

² European Regional Development Fund – INTERREG Project *Culture and Heritage for Responsible, Innovative and Sustainable Tourism Actions* (CHRISTA) (2016 –2020)

(orchestration) of services that satisfy the current and future needs and wants of such visitors. Moreover, it provides *mono-thematic access channels* – e.g. the tourism portals for museums or cultural heritage (CH) attractions - *and multi-thematic containers which allow the construction of advanced services*, enhancing wealthy experiences – e.g. virtual cultural tours in various CT attractions to clarify its cultural background or share its content on the tourism services and facilities available in the visited areas.

Subsequently, creating a personalized dynamic cultural narrative content (textual & multimedia), *Cicerone*³ smart, as a digital storytelling technique (*Reading Glove* - an interactive narrative system⁴), seeks to simulate all tourism functions and inform the visitors of all information that they require about the visited areas. Through this digital story and recognizing various contexts, it might indicate to the new points of interest during their visit along the urban topography, and *conveniently adhere to their needs and dynamic behaviour*. Therefore, it might provide a wide space to specify several collaborative and social storytelling that aim to entertain and educate CH to those visitors. [12, 13] As a result of that, it might be realized that the provided information, to the visitors either by the tour guides or other publicities, is not enough or may be difficult to achieve the desired function. Thus, the research, in the following section, reviews how to enhance culturally the visitors' experience by using effectively NLP techniques and providing personalized and easy-to-understand information that set their mentality towards respecting cultural diversity, and lessening their negative impacts on the host community.

2.2. Current Natural Language Processing Practices in Tourism

NLP is concerned with the computer's capacity to analyse and comprehend a human language whether written or spoken. (Fig.1) Voice recognition technology is utilized to transcribe verbal language into text for NLP applications. NLP plays a crucial role in the tourism industry enabling virtual travel assistants, chatbots, and robots to communicate with customers. NLP provides various significant advantages to understanding and processing vast amounts of unstructured data such as reviews, social media comments, and blog posts. Therefore, NLP algorithms extract pertinent information from these sources. In addition, facial recognition technology is frequently used to identify people in digital media like images or videos. It might count the number of individuals in a specific location and even detect the emotions of people passing by a certain point like measuring the happiness of those leaving the breakfast buffet [9, 29, 56].

NLP become a significant tool to provide personalized destination recommendations to visitors based on their preferences and interests. Regarding the abundance of digital data that was generated by the search history, social media activity, and online reviews of the visitors, NLP algorithms might analyse and interpret the data offering specific recommendations for the tourism attractions and their activities. Subsequently, it may significantly enhance the visitors' experiences and encourage them to repeat their visits [36].

There are three main techniques or methods that were used for the recommended systems: (1) collaborative filtering, (2) content-based, and (3) hybrid. Firstly, collaborative filtering is based on the opinions of other people who share similar interests, enabling people to make choices based on these opinions. Then, content-based techniques recommend items that are similar to those that the users previously preferred. In contrast, the hybrid methods combine the first and second techniques providing more accurate and tailored recommendations to the users. For instance, the fuzzy preference tree-based recommender uses the user's reviews and item-to-item similarity to recommend the facilities or services for those users [64].

³ *Cicero* - a synonym for a tour guide. It was developed when the local guides of Rome started to guide the wealthy visitors in Roman archaeological landmarks. It is also a reference to commemorate the famous lawyer Roman Marco Tullio Cicerone. [12, 13, 15]

⁴ *The system guides the users, through a history, using various recommendation methods: random ones, those based on the content of the story, and user-based recommendations.*[12]

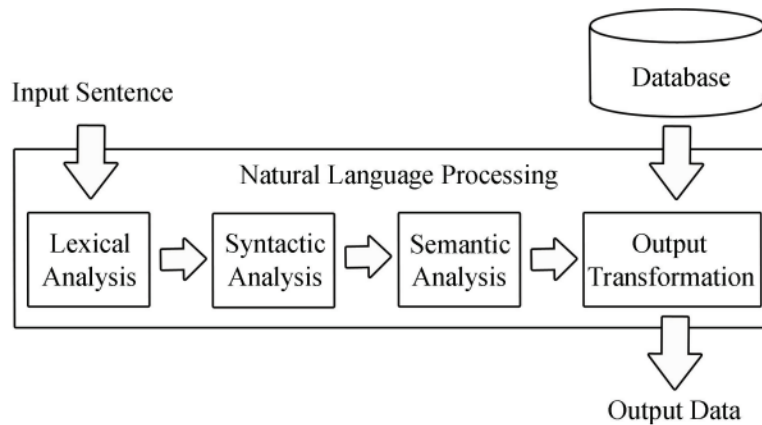


Figure 1: Natural Language Processing [56]

NLP assesses Online Travel Reviews (OTRs) to identify the recurred discussion themes and topics to infer the traveller's reference experiences during their trips whether positive or negative. [42] Therefore, it might support the tourism stakeholders to identify areas that require improvement providing a better understanding of the travellers' expectations and preferences. [29] analyse the tourism attractions-related OTRs defining the most representative themes and topics for each polarity, i.e. the positive and negative experiences. Quantifying and extracting these themes/topics, they utilize two NLP approaches, (1) Mutual Information Ranking and (2) Jaccard Coefficient. They found out two recurring negative themes/topics, (1) cleanliness and (2) prices, which were specified in particular as significant points that should be improved.

In parallel, NLP techniques might discover the underexplored tourist experiences and activities that are rarely recognized. Reviewing the literature and Instagram posts, [63] indicate the differences and similarities in the required knowledge between the visitors and the researchers. They mention that the visitors had a broader understanding of tourism and its considered activities such as urban exploration and tourism services and facilities which were rarely considered by the researchers.

According to the emotions, sentiments, and moods, NLP techniques provide recommendations to the visitors, that are relevant to their emotional state, enhancing their experience. For instance, experiencing stress or anxiety may affect the recommendations proposing activities that are calming or relaxing such as spa treatments, yoga classes, or meditation sessions. Tourism and hospitality are informative-intensive industries and require regular communication between the firms and the tourists. However, high contact levels of the tourist service personnel may raise the level of dissatisfaction that arises from embarrassment by the emotion-inducing service encounters. Therefore, to maintain consistency in tourist contact and reduce the risk, the firms should seek cost-effective means as well as chatbots [10, 57].

Chatbots - virtual assistants or conversational agents - is designed software that simulates human conversations. It uses NLP techniques to realize the users' intents, interpret human language, and generate appropriate responses. It facilitates the integration process into websites, social media platforms, messaging apps, and voice assistants to provide instant customer support, answer frequently asked questions, and automate routine tasks [62].

Chatbots has emerged as a valuable tool for recommending sights, hotels, and activities and even planning entire travel itineraries. The users traditionally require to navigate through multiple websites and install various applications to plan their trips with less inconvenience and time-consuming. The development of artificial intelligence (AI) text-based chatbots has revolutionized the methods by which visitors plan their trips. Chatbots simulates the natural language conversations with the users providing two-way interactions and serving as a single focal point for all the users' communications [17].

Despite the rapid diffusion of using chatbots in other areas, its function, in the tourism and hospitality industry, still does not reach a high level of demand. Chatbots has multiple potential benefits such as 24/7 availability, multilingual support, personalized recommendations, and cost savings. Therefore, tourism firms nowadays seek to adopt chatbots exploring the barriers to its successful implementation. In addition, it might help these firms to

match the expectations of the users such as instant responses as well as personalized recommendations. From a technical perspective, chatbots were functionalized by receiving input queries from the users, processing them through NLP algorithms, retrieving the relevant information from databases or external sources, and generating output replies in a conversational style [35, 49].

Respectively, it might be understood that NLP algorithms and chatbots might have a win-win relationship to realize various forms of the users' inputs including text, voice, images, hashtags, and emojis. According to the communication channel and the users' preferences, the output replies could be represented in various formats such as text, voice, or multimedia. Adopting chatbots involves both environmental and organizational-based factors. Subsequently, institutional theory suggests that organizations are influenced by the external norms, values, and expectations that formulate the behaviour and legitimacy. Operationalizing chatbots, tourism firms might be influenced by industry standards, customers' expectations, regulatory requirements, and technological trends [8, 55]. On the other hand, an organizational learning theory emphasizes the internal processes of knowledge acquisition, sharing, and utilization within organizations. Chatbots facilitates organizational learning by capturing and analysing the customers' data, identifying patterns and trends, and generating insights for decision-making. It might be updated improving its performance by an interaction with the users over time by the machine learning algorithms [57].

Referring to Smart Guidance - a chatbot mobile application as a good experiment, this application was designed to provide visitors with a seamless experience navigating them in Jeddah the second largest city of the Kingdom of Saudi Arabia. Application offers the visitors a wide range of options for walking around the city. Chatbots' final evaluation displayed that it could understand the meaning of the users' requests and provide immediate responses making an effective and efficient interaction. The users' experience was enhanced and satisfied expressing the needs of the natural language which contributed to creating more engaging and enjoyable interaction [2].

The potential of chatbots in the tourism industry is broadening. AI-powered tools become more flexible applying in various tourism domains. The visitors don't need to visit various websites or install multiple mobile applications. Supporting by NLP, chatbots might provide personalized recommendations to visitors depending on their preferences and interests. Chatbots offers 24/7 customer support answering Frequently Asked Questions (FAQ) and assisting visitors in booking or reserving the services and facilities saving time and effort. It might provide a seamless experience, subsequently, the visitors may use the same chatbot to be guided in a city booking activities and accommodations, and even receive real-time updates on their travel plans. For businesses, it reduces the costs, thereby they do not need to hire additional staff to handle the customers' inquiries. This contributes to creating a more cohesive and enjoyable experience for the visitors upgrading regularly their level of satisfaction [2].

As a highly advanced NLP model, ChatGPT holds immense potential for revolutionizing the tourism industry. Various actors -such as tourism companies, Destination Marketing Organizations (DMOs), and the visitors themselves might be benefited through a wide range of applications. By automating customer service tasks (e.g. information provision and reservations), ChatGPT can enhance the customer experience. Responding to the preferences, it might generate detailed instructions and procedures for the guests and even aid in designing loyalty programs. In terms of marketing, ChatGPT's capabilities extend to generating survey ideas, analysing customer feedback, and producing high-quality text for various promotional materials. ChatGPT also assists in human resource management by generating job descriptions, and interview questions, and facilitating employee onboarding and engagement. In product development and benchmarking, it contributes to suggesting new product ideas and identifying future ongoing opportunities [1, 11, 54].

Reviewing the primary advantages of ChatGPT, it significantly improves efficiency, reduces response times, and provides 24/7 communication in various languages. Through the implementation of ChatGPT-powered chatbots, self-service processes might be highly facilitated ensuring better cross-selling and upselling. Furthermore, the collected insights, from the customers' feedback, may enhance internal communications and decision-making processes. The affordability and user-friendly interface of ChatGPT may democratize AI and its applications making it accessible to Small and Medium-sized Enterprises (SMEs). It is crucial to ensure proper implementation and integration into operations with continuous evaluation and improvement of performance. ChatGPT may transform the context of labour replacing some of the tasks of human employees [11, 37].

The use of NLP techniques - such as sentiment analysis, opinion mining, and topic modelling - may contribute effectively to understanding and boosting the customers' experiences. [44] pointed out that sentiment analysis is particularly important in the tourism industry, it supports the businesses understanding the attitudes and opinions of both the visitors and the residents towards sustainable tourism development and their sentiments. Understanding their attitudes can help tourism businesses to address specific issues and improve the services or facilities. For instance, a sentiment analysis identifies the areas where the customers are dissatisfied and provides the necessary alterations to improve the experiences.

Personal online reviews, on travel-related websites such as TripAdvisor and Yelp, are currently a valuable source of information for both the visitors and the firms sharing a group of insights about the level of satisfaction as well as the feedback whether emotional, verbal, or oral. [22, 41, 44, 50, 61] points out that sentiment analysis contributes to assessing these online reviews and understanding the customers' sentiments towards different tourism services and facilities. Many researchers have used machine learning techniques such as Naive Bayes and Support Vector Machine (SVM) to classify these reviews both positive and negative. For example, [61] used topic modelling to review the feedback on Indonesian hotels identifying key topics such as cleanliness, service quality, and location. [50] used sentiment analysis to analyse the reviews on Indian hotels boosting the level of the customers' satisfaction. Moreover, [41] used machine learning algorithms to analyse the reviews on hospitality services in Brazil and identify the weaknesses. Therefore, topic modelling is considered NLP technique that identifies the trends through the customers' feedback. In terms of ambiguity, unstructured data, and domain-specific knowledge, [28] indicated that NLP faces the challenge of interpreting accurately natural language, respectively it might lead to misunderstandings between the owners of tourism services and their customers.

Tourism-related text data is often unstructured and a challenge for NLP models to process, while context is required for accurate analysis. For instance, the customers' reviews may contain slang, misspellings, or abbreviations, subsequently, it is difficult to extract accurately the sentiment. Moreover, the unstructured data is often incomplete. It misses information that could be relevant to the businesses. NLP models require domain-specific knowledge to accurately understand and interpret natural language in such an industry. In tourism, NLP models must have a deep understanding of travel-related concepts such as the amenities, a means of transportation, the tourism attractions, and local culture, thus it may correctly interpret information and assess making a decision [33].

Adopting chatbots, there are some potential barriers, especially the customers, such as the lack of awareness and trust. Some customers may perceive chatbots as impersonal or unreliable, therefore they prefer human interaction. Tourism firms are required to raise awareness among their customers about the benefits of chatbots addressing their concerns about privacy, security, and accuracy. Respectively, these firms seek to design chatbots that are considered more friendly, empathetic, and transparent to clarify their capabilities and limitations for the users. On the other hand, reviewing the technical complexity and the cost of developing and maintaining chatbots. It was asserted that these chatbots require sophisticated NLP algorithms, databases, and integration with various platforms and systems. In addition, chatbots should be continuously updated and upgraded its skills in order to be adaptive to the inputs and contexts of the new user and meet new demands and challenges. In sum, it was recommended to invest in skilled developers, data analysts, and quality assurance teams by the tourism firms ensuring high effectiveness and efficiency of chatbots [31].

Implementing NLP models, the tourism firms face several challenges such as (1) the complexity and quality of the used data upgrading the skills of the NLP algorithms being accurate and reliable to the tourism industry, (2) the cost of collecting data and its curating process, and (3) for small and medium-sized tourism firms, NLP algorithms require specialized human resources and experts to develop and maintain, as well as the outsource NLP services. In the tourism field, NLP should be scalable and adaptive with the alternative to the market's trends and the customers' preferences; additionally, comply with data privacy regulations such as GDPR and CCPA, thereby ensuring that the collected data and its process are secured, collected, and used after getting previously the customers' consent [3, 7].

Integrating with an institutional theory and an organizational learning theory, we seek in the following section to develop a conceptual framework that clarifies the adoption of NLP technique by a CT sector. This framework recognizes both the external factors that influence the adoption decision, such as industry norms and customer

expectations; and the internal factors that facilitate or hinder the adoption process such as organizational culture, leadership support, and employee skills.

3. Proposed Research Methodology

This research agenda adopts the grounded theory (GT) as an iterative tool for collecting data that seeks to describe the main phenomenon [16] which in this study, calls for developing a conceptual framework to clarify the main dimensions of a people-centred NLP. GT constructs and validates the emergent theory by employing the participants’ experiences as key data. [53] It is worth mentioning that some authors combined both NLP and GT to create frameworks and inform the decision-makers in different domains including psychology [27] and preventive veterinary medicine [20]. As a research strategy, GT aims at building a conceptualized pattern, framework or theory *about issues of importance in people’s lives, (...) through a process of data collection that is often described as inductive in nature* because of not having *preconceived ideas to prove or disprove* [23, 45]. Theory-building research/GT is feasibly and empirically legitimate to change, delete or add data collection methods along with a study process [21]. In GT, when the research starts to do his hierarchy, there are no specific hypotheses to estimate or measure. Thus, the research formulates the research problem by identifying some potentials and variables which, it seeks to solve along with the study process through literature reviews and other practices [21]. GT builds here the fundamentals of the people-centred NLP framework from theoretical resources and shared experiences. Here, *the theoretical sampling approach or paradigm is an epistemological bias to achieve a credible, accurate description of data collection* [23]. As social science research, it *focuses on what events and objects mean to people, how they perceive what happens to them and around them, and how they adapt their behaviour in light of these meanings and perspectives* [39].

3. Proposed Framework

The proposed people-centred NLP for CH framework consists of four essential phases: (1) *the design phase* encompasses initial planning and conceptualization; (2) *the pre-visit phase* focuses on equipping visitors with pertinent information and context; (3) *the in-situ visit phase* enriches the on-site visiting experience through interactive content and support; and finally (4) *the post-visit phase* extending the engagement by facilitating reflection and share factors, and sustaining an involvement. It aims to prioritize and enhance people's interaction with CH by seamlessly integrating NLP technologies across these stages, ensuring a comprehensive and enriching cultural journey from the initial planning stages to post-visit reflection and engagement.

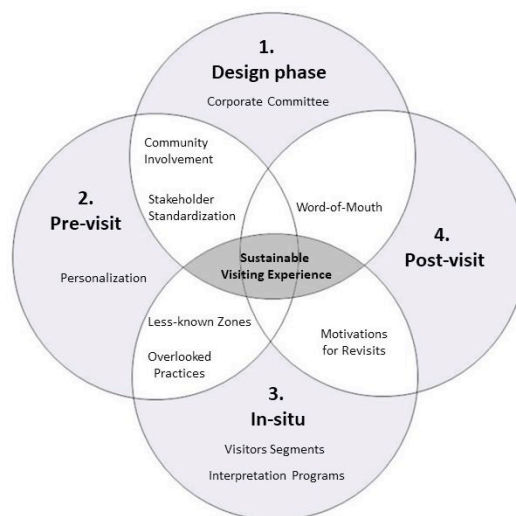


Figure 2: People-centred Natural Language Processing for Cultural Heritage (Authors,2023)

3.1. Design Phase (Fig.2)

In 2023, [30] recommend a corporate committee (a people-public-private partnership) to facilitate the constraints of CH industry (conservation vs. valorisation) setting the main priorities among stakeholders including:

- The 1st stakeholder: *Indigenous/Local Community* is a crucial keystone for successful NLP settings. They are a fundamental factor that may enhance the visitors' heritage experience;
- The 2nd stakeholder: *Governmental Bodies and Public Institutions* are the moderators who develop the main collective memory-based data. They may develop a long-term sociocultural participatory platform as a common resource for people sharing knowledge and for CI, and to promote a better CT experience. This platform validates a corporate environment among the key stakeholders. It showcases the community and their culture, stories, livelihoods, industries or crafts, and attractions. It might be a digital database for CH and social development. Moreover, it supports visitors, who are interested in exploring attractions holistically, providing more information about overlooked historic spots and the latest activities or itineraries;
- The 3rd stakeholder: *Universities and Research Centres* are the consultants that propose other innovative and creative ideas or technology to solve the updated issues of people-centred NLP settings. They might work more on the local knowledge representations in a digital manner. They may dynamically enhance it by integrating into the international contexts of a future heritage industry as an interdisciplinary study;
- The 4th stakeholder: *Civic Societies* are mentors and supportive entities. They do ground field research and reinterpret its data in a frame of applicable proposals to the 2nd stakeholder;
- The 5th stakeholder: *The Private Sector* is responsible for the implementation of the proposed NLP framework providing the technicians and programmers who may develop the relevant codes to CT.

Due to the risk of fragmentation, this committee is a decentralized cultural policy and governance model that shares a group of characteristics that constitute the identity of the collective memory and its members. With this regard, the proposed framework seeks to valorise this committee as being a main responsible for the whole technicalities as a processor of collected data creating a particular NLP for such HS or a museum.

To improve the well-being of HS and its community, the designed NLP doesn't use the available dataset on the international internet. Once it does not have information or knowledge for such questions by the visitors, it will come back to the main processor. Thereby, we might ensure highly respectful and effective preservation context for the unique CI and cultural diversity in communication with the national and international visitors. It may provide new shared spaces for the host community and the visitors, and raise public awareness of the importance of heritage to pause the informal modifications actions in the cultural asset and its significance, especially the urban layout and the social practices, because of mass tourism.

3.2. Pre-visit (Fig.2)

Ensuring highly respectful cultural diversity and regarding the demographical, spiritual, educational, and professional background of the visitors, NLP will be an automatic responsive assistant for HS's visitors covering various backgrounds about the heritage attraction and its community –including their culture and social practices – as well as the whole facilities, services, and amenities that are provided at that site. It might provide multilingual support allowing the visitors to interact with the virtual assistant regarding their preferred language. Therefore, NLP will be a focal point among various cultures, local and international languages, and dialects in CT market. For

instance, NLP can analyse the visitors' profiles and preferences delivering relevant and accurate content and recommendations that align with CH or CI of their home country as well as other specific areas of interest. Subsequently, it might be recognized that it boosts insights about Indigenous/local community -including the cultural practices, social norms, and traditions - enhancing a general perception and appreciation for HS.

Recognizing the matching points between the visitors' needs and the marketing approaches' wants, the typology of CT classifies the visitors into *culture-core or culture-peripheral groups (...) based on the importance of cultural motives in the decision and depth of cultural experience (...) visualising the relationship between cultural consumers and attractions, considering the two dimensions of static/dynamic attractions and high-brow/low-brow cultural consumption* [38].

Lessening the negative impact of seasonality, NLP seeks to represent the annual popular festivals, rituals, traditional ceremonies, and social practices along with various time slots of the year. Therefore, the number of visitors will not be focused on such a season or a specific time conserving the materiality and authenticity of HS and its community. It can also suggest alternative routes, activities, or cultural immersion opportunities that align with specific events or practices. As a result of that, NLP contributes to balancing between the sustainability of CI and the heritage community at HS, and the tourism approach operationalizing the socio-economic perspective by creating a more consistent and sustainable visitor flow throughout the year. Therefore, it contributes to avoiding seasonality. For instance, the visitors may ask "*Are there any cultural festivals happening at the heritage site in June?*". As a response, NLP can process this query extracting the relevant information about June events, and providing the visitors with the relevant data, they require, occurring during that month.

Considering customer service-based visitor management and mental cultural mapping, the visitors previously collected various data, as a routine, about their targeted attraction. Subsequently, balancing between the conservation perspective of HS management and the profitable approach of other site stakeholders, NLP as personal assistance helps to recognize diversified data and reviews being informed the prices of the site admission fee(s), facilities, services, and amenities; the schedules of the popular festivals and community's events; and also, the opening hours and a calendar of the site including dates, times, and descriptions of an activity.

Unifying the marketing activities, the Italian project *Discover Valtellina* (Valtellina, Sondrio-Lombardy [Alpine]) could be taken as an example of good practice, based on creative and collaborative cultural practices. With an aim of enhancing the sociocultural aspect, the project focuses on three fundamental keywords community, cooperation, and creativity in order to invest sustainably in cultural, social, and economic values by sharing, highlighting, and representing the manifestations of the local identity for the visitors. As a result, this regional project helps the locals to generate significant financial value for their local businesses, the tourism product *Valtellina Corners*. The 54 corners were unified to promote themselves on a common website ensuring diversified distribution channels within the cultural storytelling and providing a convenient space for experiential marketing by the local entrepreneurs and investors. Consequently, the marketization of culture might support the local identity including the heritage expression and its surrounding tourism services and facilities, in addition, to valorise its impact on the socio-cultural commemoration of the local people and their involvement level [6].

Considering the lifecycle of a tourism attraction by [46], NLP assists the visitors in exploring, whether individually or by the tour guide, the less-known zones of the urban, rural, or cultural landscape. Valorising the heritage context, NLP creates cultural packages among the main site landmarks and other scattered heritage attributes. It probably re-represents the whole attributes of HS and its surrounding historical context, respectively the visitors are encouraged to explore it later one by one whether individually or with their relatives and friends.

3.3. In-situ Visit (Fig.2)

In the absence of a participative interpretation strategy that could stimulate tourists' creative expression, sense-making, and experience creation, many memorable spaces – that might, in the long-term, provide lifelong learning memory – are not explored by the visitors as they are centralized in specific low-carrying capacity spaces. Considering the limited carrying capacity of HSSs, it might be observed that some places are filled with a high number of visitors while other places are empty. NLP might deliver a high number of visitors in various sub-

attractions controlling biophysical and social consequences of fast-growing, or excessive use levels [4].

The promotion of less-known zones at HS contributes to lessening overcrowding and overuse in the landmarks. Thereby, the site management has multiple tools, especially at the limited carrying capacity sites, to enhance the visitors' experiences, and sustain the heritage context. NLP also aids in gathering feedback to further improve the offerings and infrastructure ensuring a positive and memorable experience or nostalgia by both the visitor and the community members.

According to the Society for Interpreting Britain's Heritage's definition of a heritage interpretation concept and acting the recreational learning principles, NLP might contribute to realizing the main psychological features of the visitors with different segmentations⁵ and backgrounds that it will grab the visitors' imagination creating an emotional rapport by taking a boring topic and make it come to life. On the other hand, it helps the interpreter at HS or museum to cover multidimensional backgrounds about the visitors, especially if the site targets a particular segment e.g. children, such as (1) how the visitors learn and remember information; (2) how to provoke, relate and reveal the story to them; how to have a focused message (theme) and strive to accomplish them; (3) How to never stop trying to improve his program and creating new ways of inspiring the visitors. NLP algorithms might predict and understand the level of demand well in advance. Subsequently, This information allows the visitor management team to assign appropriate staff levels, and allocate the relevant supplies and equipment. Therefore, site management might ensure a high level of satisfaction and experience for the site's visitors. As a conceptual language, NLP might support the site interpreter to explain the site story regarding the visitors' knowledge or experience level, thereby keeping the program simple, focused, and fun. Formulating the visitors' remembrance process, NLP might cover three senses-based activities (seeing, hearing, and reading).

Referring to the aforementioned Swedish experiment *Prisma*, NLP here seeks to emancipate community involvement by sharing their unique manifestations of CI. Recognizing the up-to-date socio-economic needs of the youth people, NLP will be an interactive platform for auditing a level of modifying the cultural assets preserving the heritage knowledge in the mindset of the upcoming generations, and acting as an effective lifelong learning memory. As a result, it will lead to a group of creative and/or innovative rehabilitation and adaptive-reuse-based CT actions as well as other CH-related entrepreneurial projects. For example, the visitors can use NLP to inquire about hands-on workshops or demonstrations related to traditional crafts. They might ask "*Are there any pottery workshops available at the heritage site?*". NLP can understand the query, retrieve information about the workshops, and provide details about how the visitors can participate in.

3.4. Post-visit (Fig.2)

The visitors are considered the lifeblood of such a kind of HS. NLP with this stage might construct a strong bridge with the visitors, by valorising direct communication and boosting the positive impacts of word-of-mouth image, in order to transform them from single-time visitors to regular visitors or in another form, to be members by boosting their heritage experience after leaving HS. Word-of-mouth, as an interpersonal communication tool either by unpaid individuals or trusted influencers, might draw the visitors' future motivations, and a purchasing mentality, and generate new expectations using social media devices and mobile applications [60]. NLP can aid in identifying emerging trends and preferences among visitors. By analysing the language of online discussions, reviews, and recommendations, HSs can gain insights into evolving visitors' expectations and adapt their offerings accordingly. This proactive approach enables them to stay relevant and continuously engage with their visitors through social media tools and applications.

4. Discussion and Conclusion

⁵ Tourism Marketing Segmentation: (1) Geographic segment (local visitors, short-distance visitors, long-distance visitors, and international visitors); (2) Demographic segment (family size, age, sex, family income, education, job, ethnicity, and religion); (3) Psycho-graphical segment (social class, lifestyle, and personality); (4) Socio-economic segment; and (5) Cultural segment.

The research reviews deeply the challenges and opportunities associated with the uses and purposes of NLP techniques in CT market. Although it was restricted by specific parameters such as the use of a command flow, it could provide insights into the preferences and needs of the visitors, especially for the personalized and interactive cultural (edutainment) tourism itineraries. With regard to the multilingual CT contexts, it could dedicate the language-specific nuances, dialects, and cultural variabilities that affect the performance of NLP algorithms. It develops an innovative approach that provides accurate and culturally sensitive translations, recommendations, and interactions for such HS's visitors.

Participating in the future heritage industry and adopting a people-centred approach, several areas of focus were identified regarding the ethical considerations, challenges, and opportunities of using NLP techniques within the context of CT. These ethical implications were investigated by reviewing how NLP was utilized in CT particularly examining potential biases that were presented in language processing algorithms and its impact on CI manifestation and authenticity factor. This exploration aims to identify some methods to mitigate these biases and ensure a responsible and inclusive usage of NLP from CT perspective.

Recognizing the significant role of sentiment analysis, it might contribute to analysing and precepting the visitors' sentiments. Respectively, the research could indicate how this analysis might highly estimate the level of the visitors' satisfaction and gradually upgrade it by enhancing their experiences at HS as well as identifying areas that are required to be improved and updated. Developing the sentiment analysis-utilized strategies to provide high-quality personalized recommendations and interactions, the research recommends future research activities, to integrate NLP techniques –especially collaborative filtering algorithms -in augmented reality (AR) technologies. For instance, it might provide real-time historical or cultural information about the landmarks or artefacts towards creating innovative AR-NLP systems for immersive and educational CT itineraries.

Validating the applicability of the proposed framework and integrating the competitive advantages of NLP techniques into CT markets, a multifaceted approach might be adopted in future research. The initial phase could involve conducting pilot studies in specific CT attractions or HSs. These pilot studies would serve as controlled experiments, implementing NLP techniques detailed in the research to assess its effectiveness in real-world scenarios. Such studies would provide valuable insights into the feasibility of implementing culturally NLP in diverse contexts and assist in identifying any technical or cultural challenges that may arise.

Another avenue for future research would involve implementing sentiment analysis tools to continuously monitor visitor sentiment and satisfaction levels through surveys, feedback forms, or analysing social media posts. Integrating NLP techniques into AR technologies, as aforementioned, should be more investigated. The development and testing of AR-NLP systems in real-world scenarios can provide critical insights into its effectiveness in delivering immersive and educational CT itineraries. Longitudinal studies may also be conducted to track the long-term impact of NLP-powered CT systems, measuring changes in visitor engagement, satisfaction, and the evolution of CT experience over time.

In sum, the proposed framework serves as an initiated design that develops the systems of CT itineraries incorporating NLP techniques in a community-based CT market. Using various NLP techniques or systems, the findings might be directly applicable to CT itineraries which are based on HSs where the community is still living and surviving their social practices.

References

- [1] Ali, F. (2023). Let the Devil Speak for Itself: Should ChatGPT Be Allowed or Banned in Hospitality and Tourism Schools?. *Journal of Global Hospitality and Tourism* 2(1), 1-6.
- [2] Alotaibi, R., Ali, A., Alharthi, H. & Almehamdi, R. (2020). AI Chatbot for Tourist Recommendations: a Case Study in the City of Jeddah, Saudi Arabia. *International Association of Online Engineering*. Retrieved May 7, 2023, from www.learntechlib.org/p/218406/
- [3] Álvarez-Carmona, M.A., Aranda, R., Rodríguez-Gonzalez, A.Y., Daniel Fajardo-Delgado. D., Sánchez, M.G., Pérez-Espinosa, H., Martínez-Miranda, J., Guerrero-Rodríguez, R., Bustio-Martínez, L., & Díaz-Pacheco, A.

- (2022). Natural Language Processing Applied to Tourism Research: a Systematic Review and Future Research Directions. *Journal of King Saud University-Computer and Information Sciences* 34(10.B), 10125-10144.
- [4] Amer, M., Ginzarly, M., & Renzi, M.F. (2023). Civita di Bagnoregio, Italy: Towards a People-centred Heritage Branding Approach. *Journal of Heritage Tourism* 18(2).
- [5] Ardito, L., Cerchione, R., Del Vecchio, P., & Raguseo, E. (2019). Big Data in Smart Tourism: Challenges, Issues, and Opportunities. *Current Issues in Tourism*, 22(15), 1805-1809.
- [6] Basile, M. (2018). Local Food, Wine Heritage and Destination Marketing: Relaunching Valtellina Alpine Destination. In *Economia della Cultura: Rivista Trimestrale dell'Associazione per l'Economia della Cultura* (Vol. 1-2). Milan, 213-220.
- [7] Binabdullah, K., & Tongtep, N. (2021). Comparative Study on Natural Language Processing for Tourism Suggestion System. In *the Proceedings of the 36th International Technical Conference on Circuits/Systems, Computers and Communications*. Jeju: IEEE.
- [8] Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. (2019). Technological Disruptions in Services: Lessons from Tourism and Hospitality. *Journal of Service Management* 30(4), 484 – 506.
- [9] Bulchand-Gidumal, J. (2022). Impact of Artificial Intelligence in Travel, Tourism, and Hospitality. In Z. Xiang, M. Fuchs, U. Gretzel, & W. Höpken (eds.), *Handbook of e-Tourism*. Cham: Springer, 1943-1962.
- [10] Calvaresi, D., Ibrahim, A., Calbimonte, J. P., Schegg, R., Fragniere, E., & Schumacher, M. (2021). The Evolution of Chatbots in Tourism: a Systematic Literature Review. In W. Wörndl, C. Koo, & J.L. Steinmetz (eds), *the Proceedings of ENTER 2021 eTourism Conference - Information and Communication Technologies in Tourism*. Cham: Springer, 3-16.
- [11] Carvalho, I., & Ivanov, S. (2023). ChatGPT for Tourism: Applications, Benefits and Risks. *Tourism Review*. <http://dx.doi.org/10.1108/TR-02-2023-0088>
- [12] Casillo, M., Clarizia, F., Colace, F., Lombardi, M., Pascale, F., & Santaniello, D. (2019). An Approach for Recommending Contextualized Services in E-Tourism. *Information*, 10(5), 180.
- [13] Casillo, M., Clarizia, F., D'Aniello, G., De Santo, M., Lombardi, M., & Santaniello, D. (2020). CHAT-Bot: a Cultural Heritage Aware Teller-bot for Supporting Touristic Experiences. *Pattern Recognition Letters*, 131, 234-243.
- [14] Chong, K.L. (2020). The Side Effects of Mass Tourism: the Voices of Bali Islanders. *Asia Pacific Journal of Tourism Research*, 25(2), 157-169.
- [15] Clarizia, F., Colace, F., De Santo, M., Lombardi, M., Pascale, F., & Santaniello, D. (2019). A Context-Aware Chatbot for Tourist Destinations. In *the Proceedings of the 15th International Conference on Signal-Image Technology and Internet-Based Systems*. IEEE, 348-354.
- [16] Creswell, J.W. (2007). *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (2nd ed.). London: Sage.
- [17] De Sá Siqueira, M.A., Müller, B.C.N., & Bosse, T. (2023). When Do We Accept Mistakes from Chatbots? the Impact of Human-like Communication on User Experience in Chatbots that Make Mistakes. *International Journal of Human-Computer Interaction*. <https://doi.org/10.1080/10447318.2023.2175158>
- [18] Di Pietro, L., Guglielmetti Mugion, R., & Renzi, M.F. (2014). Cultural Technology District: a Model for Local and Regional Development. *Current Issues in Tourism*, 17(7), 640-656.
- [19] Di Pietro, L., Guglielmetti Mugion, R., Mattia, G., & Renzi, M.F. (2012). Cultural Heritage for Economic Growth: a Case Study on Cultural Consumer Behaviour. In *the Proceedings of the 15th QMOD Conference on Quality and Service Sciences - How Many Organisations Use Learning, Creativity and Innovation in Realising Their Dreams of Excellence and Recover from the Economic Crisis?*, 436-451.
- [20] Doidge, C., Ferguson, E., Lovatt, F., & Kaler, J. (2021). Understanding Farmers' Naturalistic Decision-making around Prophylactic Antibiotic Use in Lambs Using a Grounded Theory and Natural Language Processing Approach. *Preventive Veterinary Medicine* 186, 105226. <https://doi.org/10.1016/j.prevetmed.2020.105226>

- [21] Eisenhardt, K.M. (1989). Building Theories from Case Study Research. *Academy of Management Review*, 14(4), 532-550.
- [22] Gao, S., Hao, J., & Fu, Y. (2015). The Application and Comparison of Web Services for Sentiment Analysis in Tourism. In *the Proceedings of the 12th International Conference on Service Systems and Service Management*. Guangzhou: IEEE. 22.
- [23] Glasser, B.G. (2007). Constructivist Grounded Theory?. *Historical Social Research/Historische Sozialforschung. Supplement*, 19, 93-105.
- [24] Gotham, K.F. (2007). (Re)branding the Big Easy: Tourism Rebuilding in Post-Katrina New Orleans. *Urban Affairs Review*, 42(6), 823–850.
- [25] Gravagnuolo, A., & Varotto, M. (2021). Terraced Landscapes Regeneration in the Perspective of the Circular Economy. *Sustainability*, 13(8), 4347.
- [26] Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart Tourism: Foundations and Developments. *Electronic Markets*, 25, 179-188.
- [27] Grimley, B.N. (2016). What is NLP? the Development of a Grounded Theory of Neuro-Linguistic Programming, (NLP), within an Action Research Journey. Implications for the Use of NLP in Coaching Psychology. *International Coaching Psychology Review*, 11(2), 166–178.
- [28] Grundner, L., & Neuhofer, B. (2021). The Bright and Dark Sides of Artificial Intelligence: a Futures Perspective on Tourist Destination Experiences. *Journal of Destination Marketing and Management*, 19. <https://doi.org/10.1016/j.jdmm.2020.100511>
- [29] Guerrero-Rodriguez, R., Álvarez-Carmona, M.Á., Aranda, R., & López-Monroy, A.P. (2023). Studying Online Travel Reviews Related to Tourist Attractions Using NLP Methods: the Case of Guanajuato, Mexico. *Current Issues in Tourism* 26(2), 289-304.
- [30] Gustafsson, C., & Amer, M. (2023). Forsvik, Sweden: Towards a People-Public-Private Partnership as a Circular Governance and Sustainable Culture Tourism Strategy. *Sustainability* 15(5), 4687.
- [31] Hughes, A. (2023), ChatGPT: Everything You Need to Know about OpenAI's GPT-3 Tool. *BBC Science Focus Magazine*. Retrieved May 7, 2023, from www.sciencefocus.com/future-technology/gpt-3/
- [32] Ikiz Kaya, D., Pintossi, N., & Dane, G. (2021). An Empirical Analysis of Driving Factors and Policy Enablers of Heritage Adaptive Reuse within the Circular Economy Framework. *Sustainability*, 13(5).
- [33] Iskender, A. (2023). Holy or Unholy? Interview with Open AI's ChatGPT. *European Journal of Tourism Research*, 34. <https://doi.org/10.54055/ejtr.v34i.3169>
- [34] Kalvet, T., Olesk, M., Tiits, M., & Raun, J. (2020). Innovative Tools for Tourism and Cultural Tourism Impact Assessment. *Sustainability*, 12(18), 7470.
- [35] Kasinathan, V., Mustapha, A., Mohamad Firdaus Che, A.R., & Mostafa, S.A. (2020). The Role of Chatterbots in Enhancing Tourism: a Case Study of Penang Tourism Spots. *International Journal of Artificial Intelligence*, 9(4), 569-575.
- [36] Kavitha, S., Jobi, V., & Rajeswari, S. (2017). Tourism Recommendation Using Social Media Profiles. In S. Dash, K. Vijayakumar, B. Panigrahi, and S. Das, (eds), *the Proceedings of Artificial Intelligence and Evolutionary Computations in Engineering Systems / Advances in Intelligent Systems and Computing* (Vol. 517). Singapore: Springer, 243-253.
- [37] Korzynski, P., Mazurek, G., Altmann, A., Ejdy, J., Kazlauskaite, R., Paliszkiwicz, J., Wach, K., & Ewa Ziemba, E. (2023). Generative Artificial Intelligence as a New Context for Management Theories: Analysis of ChatGPT. *Central European Management Journal* 31(1), 3-13.
- [38] Liu, Z., Wang, A., Weber, K., Chan, E.H., & Shi, W. (2022). Categorisation of Cultural Tourism Attractions by Tourist Preference Using Location-based Social Network Data: the Case of Central, Hong Kong. *Tourism Management*, 90, 104488.
- [39] Locke, K.D. (2001). *Grounded Theory in Management Research*. London: Sage.

- [40] Lu, Z., Valverde, R., Iqbal, R., & Chang, V. (2017). Big Data in Cultural Tourism and Sustainable Development: Opportunities, Challenges and Future Direction. In *the Proceedings of the 10th Royal Bank International Research Seminar*. Montreal.
- [41] Manosso, F.C., & Domareski Ruiz, T.C. (2021). Using Sentiment Analysis in Tourism Research: a Systematic, Bibliometric, and Integrative Review. *Journal of Tourism, Heritage and Services Marketing*, 7(2), 17-27.
- [42] Marine-Roig, E. (2021). Content Analysis of Online Travel Reviews. In Z. Xiang, M. Fuchs, U. Gretzel & W. Höpken (eds.), *Handbook of e-Tourism*. Cham: Springer.
- [43] Mason, R. (2014). Heritage and Identity: What Makes Us Who We Are?. The Heritage Alliance. Retrieved April 01, 2018, from www.theheritagealliance.org.uk/tha-website/wp-content/uploads/2014/11/Heritage-and-Identity-talk-Rhiannon-Mason.pdf
- [44] Mehraliyev, F., Chan, I.C.C., & Kirilenko, A.P. (2022). Sentiment Analysis in Hospitality and Tourism: a Thematic and Methodological Review. *International Journal of Contemporary Hospitality Management*, 34(1), 46-77.
- [45] Mills, J., Bonner, A., & Francis, K. (2006). The Development of Constructivist Grounded Theory. *International Journal of Qualitative Methods*, 5(1), 25-35.
- [46] Morrison, A.M. (2013). *Marketing and Managing Tourism Destinations* (1st ed.). New York: Routledge.
- [47] Noonan, D.S., & Rizzo, I. (2017). Economics of Cultural Tourism: Issues and Perspectives. *Journal of Cultural Economics*, 41, 95-107.
- [48] OECD (2019). *Embracing Innovation in Government: Global Trends 2019*. Paris: OECD Publishing.
- [49] Orden-Mejia, M., & Huertas, A. (2022). Analysis of the Attributes of Smart Tourism Technologies in Destination Chatbots that Influence Tourist Satisfaction. *Current Issues in Tourism* 25(17), 2854-2869.
- [50] Ramanathan, V., & Meyyappan, T. (2019). Twitter Text Mining for Sentiment Analysis on People's Feedback about Oman Tourism. In *the Proceedings of the 4th MEC International Conference on Big Data and Smart City*. Muscat: IEEE, 1-5.
- [51] Richards, G. (2018). Cultural Tourism: a Review of Recent Research and Trends. *Journal of Hospitality and Tourism Management*, 36, 12-21.
- [52] Saufi, A., O'Brien, D., & Wilkins, H. (2014). Inhibitors to Host Community Participation in Sustainable Tourism Development in Developing Countries. *Journal of Sustainable Tourism*, 22(5), 801-820.
- [53] Seyfi, S., Michael Hall, C., & Fagnoni, E. (2019). Managing World Heritage Site Stakeholders: a Grounded Theory Paradigm Model Approach. *Journal of Heritage Tourism*, 14(4), 308-324.
- [54] Skavronskaya, L., Hadinejad, A., & Cotterell, D. (2023). Reversing the Threat of Artificial Intelligence to Opportunity: a Discussion of ChatGPT in Tourism Education. *Journal of Teaching in Travel and Tourism* 23(2), 253-258.
- [55] Srinivasan, R. (2021). Chatbot Application for Tourism Using Natural Language Tool Kit. *Turkish Journal of Computer and Mathematics Education*, 12(9), 1786-1789.
- [56] Tapsai, C., Meesad, P., & Haruechaiyasak, C. (2016). TLS-ART: Thai Language Segmentation by Automatic Ranking Trie. In *the Proceedings of the 9th International Conference Autonomous Systems*. Retrieved September 03, 2023, from www.researchgate.net/profile/Phayung-Meesad/publication/311705165.
- [57] Ukpabi, D.C., Aslam, B., & Karjaluoto, H. (2019). Chatbot Adoption in Tourism Services: a Conceptual Exploration. In S. Ivanov, and C. Webster (eds.). *Robots, Artificial Intelligence, and Service Automation in Travel, Tourism and Hospitality*. Bingley: Emerald Publishing Limited, 105 - 121.
- [58] UNWTO (2018). *Tourism and Culture Synergies*. Madrid: UNWTO.
- [59] UNWTO. (2019). *Tourism and Culture*. Retrieved May 28, 2020, from www.unwto.org/tourism-and-culture
- [60] Williams, N.L., Ferdinand, N., & Bustard, J. (2020). From WOM to a WOM—the Evolution of Unpaid

Influence: a Perspective Article. *Tourism Review*, 75(1), 314-318.

[61] Windasari, I.P., & Eridani, D. (2017). Sentiment Analysis on Travel Destination in Indonesia. In M. Facta, M.A. Riyadi, A.B. Prasetyo, E.D. Widiyanto, & D. Eridani (eds.), *the Proceedings of the 4th International Conference on Information Technology, Computer, and Electrical Engineering*. Semarang: IEEE, 276-279.

[62] Xu, A., Liu, Z., Guo, Y., Sinha, V., & Akkiraju, R. (2017). A New Chatbot for Customer Service on Social Media. In *the Proceedings of Conference on Human Factors in Computing Systems*, 3506-3510.

[63] Yu, J., & Egger, R. (2022). Looking Behind the Scenes at Dark Tourism: a Comparison between Academic Publications and User-generated Content Using Natural Language Processing. *Journal of Heritage Tourism* 17(5), 548-562.

[64] Zhang, Q., Lu, J., & Jin, Y. (2021). Artificial Intelligence in Recommender Systems. *Complex and Intelligent Systems* 7, 439-457.