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Blockchain Propels Tourism Industry—An Attempt to Explore Topics and Information in Smart Tourism Management through Text Mining and Machine Learning

Vikram Puri [1], Subhra Mondal [2], Subhankar Das [2,*] and Vasiliki G. Vrana [3,*]

[1] Center of Visualization and Simulation, Duy Tan University, Da Nang 550000, Vietnam
[2] The Honors Programme, Department of Marketing, and Innovation, Duy Tan University, Da Nang 550000, Vietnam
[3] Department of Business Administration, School of Economics and Administration, The Campus of Serres, International Hellenic University, 62124 Serres, Greece
* Correspondence: subhankardas@duytan.edu.vn (S.D.); vrana@ihu.gr (V.G.V.)

Abstract: Blockchain and immersive technology are the pioneers in bringing digitalization to tourism, and researchers worldwide are exploring many facets of these techniques. This paper analyzes the various aspects of blockchain technology and its potential use in tourism. We explore high-frequency keywords, perform network analysis of relevant publications to analyze patterns, and introduce machine learning techniques to facilitate systematic reviews. We focused on 94 publications from Web Science that dealt with blockchain implementation in tourism from 2017 to 2022. We used Vosviewer for network analysis and artificial intelligence models with the help of machine learning tools to predict the relevance of the work. Many reviewed articles mainly deal with blockchain in tourism and related terms such as smart tourism and crypto tourism. This study is the first attempt to use text analysis to improve the topic modeling of blockchain in tourism. It comprehensively analyzes the technology's potential use in the hospitality, accommodation, and booking industry. In this context, the paper provides significant value to researchers by giving an insight into the trends and keyword patterns. Tourism still has many unexplored areas; journal articles should also feature special studies on this topic.

Keywords: text analysis; machine learning; artificial intelligence; bibliometrics; topic modeling; blockchain in tourism; smart tourism

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1. Introduction

Online travel agencies (OTAs) play a vital role in tourism by providing the necessary inventory to maximize their clients' sales. OTAs are also able to prevent new entrants to the market. One of the most critical roles of blockchain technology in the tourism industry is to eliminate the involvement of third parties [1]. Blockchain technology's potential to improve the tourism industry's performance and competitive advantage is immense [2]. Blockchain technology's rapid emergence and evolution could significantly impact the global economy [3] and the tourism industry [4]. For example, many small island economies adopted this technology [5].

Before the pandemic outbreak, the travel and tourism industry was responsible for over one in four new jobs worldwide [6]. The overall contribution of tourism to the global economy and international tourist spending (2019–2022) is shown in Figure 1 [7–10].

Tourism research has advanced significantly and is now recognized as a distinct and diversified management sector [11]. Research journals on tourism bring a new perspective into the already crowded field of management research, revealing the diversity of tourism research and elevating it to a distinct academic discipline. The topics "smart tourism" and "blockchain in tourism" have gathered significance in the last five years. Tourism is

closely associated with the application of blockchain, the Internet of Things (IoT), artificial intelligence (AI), and machine learning (ML). Some research about tourism research related to the blockchain has been reviewed by others [12–16], but no structural review of "smart tourism by blockchain" is available.

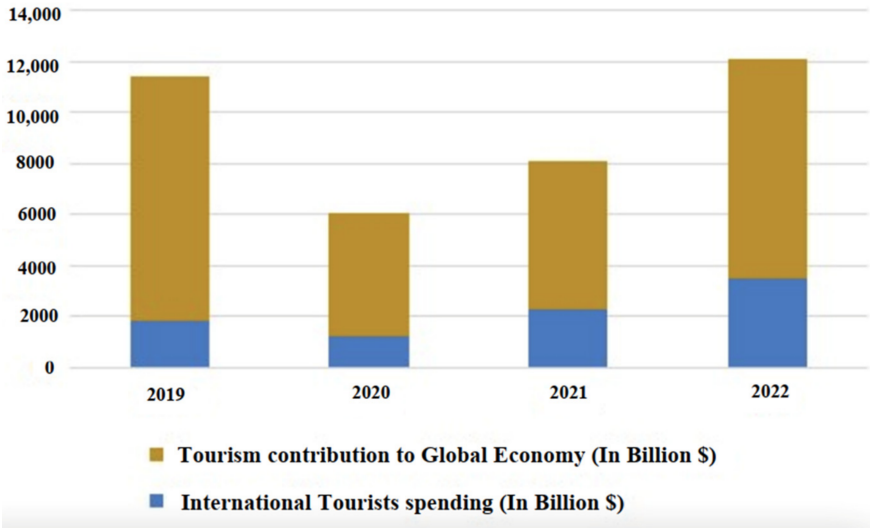

Figure 1. Monetary effect of tourism and economy. Source: Authors' interpretation from recent studies.

Social science and tourism researchers tend to publish in social science citation index (SSCI)-approved journals to reach a wider audience and establish a reputation in the research community [17–19]. We also believe that SSCI-indexed publications elevate the prestige of the published study, and the authors can significantly alter the journal's authorship structure. We used the Web of Science database and focused on SSCI-approved journals mainly focused on blockchain application in tourism to

a. *Identify the topics and their unexplored relations in all publications by text classification modeling using ML.*
b. *Highlight prominent researchers and their networks by bibliometric analysis using Vosviewer.*

While the enormous amount of research papers available on the Web of Science is problematic, a more significant obstacle is the lack of methodological rigor in systematic reviews. Many replication studies are available with different representations [20]. Most authors use Vosviewer software and bibliometrics to study citation, authorship, keywords, and geographical distribution of authorship. However, it is also essential to explore text trends and patterns with text mining and ML applications. Such tools may provide a more accurate information analysis since they are independent of human judgment biases. AI tools analyze organic inputs entered by humans to give a less biased output [21].

Recent developments in ML applications captured the attention of researchers. Scholars have used ML to review the literature, explore hidden trends [22,23], conduct text analyses and examine the complexities of information [24], and explore authorship, citation, keywords, geographical distribution, and coauthorship. AI and ML tools are predominantly used in medical imaging research to produce more specific results [24].

In this paper, we explore the various aspects of blockchain technology's potential use in the tourism industry and analyze the potential of blockchain technology to enhance the tourism industry's customer satisfaction and performance. We aim to comprehensively analyze the various factors that affect the development and implementation of blockchain technology in tourism's impact on the economy. Moreover, as there are no structural reviews of "smart tourism by blockchain", we are trying to fill this gap. AI and ML were applied to study the bibliometric analysis of publications in smart tourism where blockchain is used. The output of AI- and ML-based text mining for reviews of research articles will

have fewer critical errors. We do not intend to say that text mining based on ML is devoid of all limitations or is the best way to analyze. However, we attempted to produce a more precise, unbiased output that will differ from all the existing tools and that can be explored more.

The systematic reviews are supported mainly by Vosviewer, whereby software analyses are supported by the strength of relationships between authors, citations, etc. Such analyses are command-based. Research is a progressive entity, so we tried to present an advanced method for more theoretical contributions. Employing blockchain analysis in tourism with ML text-mining predicts keywords and their studies with assurance so that industry and academia may unearth hidden trends. We argue that tourism scholars will benefit from the evidence-based explanation of current keywords, patterns of topics, and network analysis. The study will add more valid and reliable output to blockchain and intelligent tourism studies [25].

The paper is structured as follows: First, we present an overview of blockchain applications in tourism, followed by an overview of text mining with ML and AI. The following section includes results and discussion. Methodology and research questions are shown in the fourth section. Practical implications, limitations, and recommendations for future research are given in the final section.

2. Overview of Blockchain Applications in Tourism

The rapid emergence and evolution of digital technology have created an enormous opportunity for the tourism industry to transform itself [26] due to the increasing number of travelers and the changing requirements of travelers' organizations. The tourism industry will adopt new strategies and innovations to keep up with postpandemic recovery and maintain healthy competition in its ecosystem [27]. The latter include liberalized interest rates, low profit margins, and varying levels of earnings [28]. Blockchain technology is an innovation used in the tourism industry [29]. It allows companies to operate in a trustworthy and transparent manner without the need for central control. The ability to process and organize information in long-lasting and reliable blocks is a new way of collecting and recording tourism activities [30]. Blockchain technology will help improve the efficiency of the tourism industry by building trust among various stakeholders [31]. An example of its use is developing an identity management system that allows travelers to manage multiple activities [32] efficiently. Blockchain technology can reduce the cost of currency exchange by up to 90% and help simplify frequent traveler loyalty programs [33]. Due to the increasing number of travelers and the changing requirements of their organizations, the tourism industry is expected to adopt this innovation [4] widely.

The rapid emergence and popularity of blockchain technology have been attributed to the growing number of people who have encountered it due to the increasing number of cryptocurrencies being developed [34]. Despite the technological advancements in the field, the blockchain industry is still in its early stages and applications [35]. These are mostly isolated examples of how technology can improve business operations. However, it is essential to explore how blockchain can be utilized to enhance the activities of a company.

A blockchain is an incorruptible distributed database that stores and manages information. It can be comprehensive and affect various monetary value-added transactions, such as money and values. A blockchain is a type of ledger that records transactions and data chronologically. It can be linked together using a set of blocks known as hash and information. When these blocks are linked together, they form a secure chain [36]. Multiple users can add to it, which guarantees its correctness and security. Each new block of the blockchain is built on the previous block. It ensures that the data is stored securely and uniquely. Blockchain technology can help transform the way various industries operate, where multiple sectors of the economy have become free from the constraints of licensing and regulatory schemes typically associated with the government [37]. Data guarantee is also an essential component of a blockchain [38]. The platform allows people to record transactions related to assets and services securely and chronologically. These can include

payments for products and services and receiving and sending money. Through its network, participants can verify and audit the transactions [39]. The potential of blockchain technology to facilitate the exchange of values and resources is immense. It can create new business models by allowing companies to interact with their partners automatically [40]. The first generation of blockchain technology was developed for cryptocurrencies, while the latest generation is designed for distributed computing.

The use of blockchain technology in the tourism industry can help reduce the costs associated with transactions. According to researchers, implementing blockchain smart contracts can help reduce uncertainties, improve trade efficiency [27,41], and minimize the risk of errors and the complexity of the trade by providing relevant information to interested parties [42–44]. In addition, it can help improve trading quality by facilitating the linkage between sellers and buyers [45]. Due to the increasing number of social media users, the potential for fraud and fake reviews has become a significant concern for the tourism industry [46]. Blockchain technology can help tour operators ensure the safety of financial transactions and prevent social media-induced fraud. It will provide psychological assurance for tourists.

The commercial use of blockchain technology is expected to begin from an exploratory stage to a more prominent role in the development of real-world solutions. This technology will allow companies to find ways to solve current problems and improve the efficiency of their operations [47]. It will also enable them to implement cross-industry applications that can affect supply chain management and contracts. In addition, it can help strengthen the banking system and safeguard the currency [48]. The blockchain's diversification can help the tourism industry lower operating costs. Blockchain development and the increasing number of smart contracts are expected to benefit the tourism industry [49]. It has been shown that both smart cities and intelligent tourism have the same architecture.

The tourism industry is expected to embrace technological developments that significantly change its business. Three main improvement fields are identified: cost reduction, cryptocurrency adoption, and the development of new ecosystems [2]. The use of blockchain technology in the tourism industry can help reduce the time it takes to organize a trip. It can also help improve the efficiency of the multiple processes involved in planning and booking a trip. The use of blockchain technology will significantly reduce the time it takes to check travelers at airports, ports, and other transport facilities [4]. It eliminates the need for people to gather information and transactions from various places. Since it is a decentralized system, the individual must only provide their name and address once before boarding a plane [50]. There are many advantages to blockchain technology for the hospitality and tourism industry. These include its ability to provide secure and transparent transactions and improve the efficiency of the various processes involved in booking and planning a trip [51]. It can additionally help boost the level of trust and confidence among participants. Due to the increasing number of blockchain technology investments, the tourism industry's future is expected to improve [52]. Therefore, researchers in the tourism industry must conduct studies on the various aspects of blockchain technology's use in the industry. They should take a comprehensive look at its multiple applications to create practical research proposals.

In 2025, blockchain technology is expected to become a central component of business operations in the hospitality and tourism industry [53]. The innovation and application will affect various parts of the industry. Despite the positive effects of blockchain technology, its implementation still has many challenges that need to be solved to benefit the tourism industry [54]. The tourism market is a complex industry that constantly changes due to the needs and wishes of its customers. Therefore, studying various aspects of blockchain technology's use in the industry is essential.

The rapid technological development in the tourism industry over the past few years has led to the assumption that blockchain technology will eventually become the main component of the industry's operations. Several experts in the field of AI are currently developing applications that can use collected and stored data to provide users with

accurate and timely recommendations [55]. One of the most critical factors that the tourism industry can consider when implementing blockchain technology is creating a global database that can provide the most accurate and unbiased information about the suppliers and market users [56]. It would allow businesses to improve efficiency and provide a more comprehensive and impartial experience. The emergence of blockchain technology as a potential solution for managing loyalty programs is a significant opportunity for the industry. Various companies in the travel industry will need to participate in the development of a blockchain-based platform that will allow them to manage their loyalty programs. It is also noted that the platform should maintain impartial and exclusive control over its data.

3. Overview of Text Mining with ML and AI

The recent developments in various research databases, web technologies, and digital documentation techniques due to AI and ML advancements attract the attention of researchers. Researchers use text mining (TM) to explore hidden research trends in a particular area [57]. TM techniques face the biggest obstacle in meeting the standards of natural language processing (NLP). Consider text mining with the ever-growing demand to extract information from texts stored in digital resources [58]. It is not easy to remove and analyze the texts. The availability of textual data from various research databases makes the analysis difficult manually or with software such as Vosviewer. Though Vosviewer helps in network analysis for bibliometrics, it cannot determine the trend of research and keywords pattern [59].

It is now common to assume that AI can be the best alternative replacement for all human activities [60]. Researchers argue that a considerable amount of data can be analyzed by ML tools, but the complexity of interpretation can only be productive with human orientation [61]. ML can significantly apply to systematic review studies, which will help extract relevant academic studies from databases [62]. One of the essential functions of AI is to analyze the trends of topics and keywords in the academic literature by using tools such as natural language processing (NLP) [63]. The rapid emergence and evolution of AI technologies over the past few years has shown that they are catching up to the cognitive process of humans, such as making routing decisions and playing chess. In the future, they may be able to perform a better analysis of massive amounts of data [64]. With the help of machine learning tools, AI systems can better comprehend and predict human language [65]. Despite the immense potential of AI in various fields, such as medical imaging studies, it is still not widely used in mainstream scientific research. Instead, it is mainly used in social science and tourism.

Text Mining Literature Tools

a. Extraction of Information

This step follows predefined text arrangements by matching the pattern. It is the first step where researchers extract relevant information from unstructured research articles [66]. Here, researchers select appropriate articles, link them with cooperative association with the terms [67], and discover and collect information by differentiating relevant text, extracting pertinent data and converting them into functional forms [68].

b. Discovery of Suitable Text

The Discovery of suitable text (DoscoText) is the most critical aspect of TM. It gathers structured data from unstructured texts. Authors use knowledge discovery tools from databases of research (KDD) to obtain structured, relevant data that can help in the analysis [69]. Authors use keyword extraction to classify text, make clusters of terms, summarize topics, and give a pattern of the used terms [70].

c. Text Analytics

Text analytics is an automated process that helps to interpret a large amount of unstructured text into qualitative data, especially for uncovering insights, trends, and

patterns [71]. The amalgam of text analytics and visualization tools better understands the problem and accommodates fruitful decision-making [72]. In this work, we apply text analytics to generate a word cloud and plot the most frequent terms used in the abstract and title [73]. The word cloud is the visual representation of the words associated with the text data, highlighting the words' frequency and relevance [74]. The steps of text analysis follow the specific steps mentioned below.

i. Fetch word count from title and abstract:

After successfully importing the dataset, both the words in the abstract and the title must be counted. A lambda function is used to count the number of words. A lambda function is a small function that contains single expressions and can also act as an anonymous function where it does not need any name [75]. The lambda function consists of three parts: (1) keyword, (2) bound variable, and (3) expression. In this study, this function is deployed to fetch the number of words in every abstract and title [76].

ii. Stopwords:

Stopwords are a filter-out technique for natural language processing [77]. It is a technique that is used to preprocess the collected text. It helps to remove the most common words, such as prepositions and articles, which do not have significant meaning in the text [78]. In this step, we created a list of customs stopwords such as using, show, large, also, one, two, new, previously, and shown to set up a dictionary [79].

iii. Remove the punctuation and special characters:

This text preprocessing step initially converts all lower cases and removes the punctuations and characters. Afterward, tokenization is applied to convert strings into a list and remove the stopwords [80]. Again, the final step is to convert lists into strings [81]. Stemming and lemmatization help remove the -ing and -ly and reclaim the word into root words.

iv. Word Cloud:

It is a technique of visual representation of keywords depending on their structured frequency [82]. It is a prevalent method and is primarily acceptable by researchers. It is used to extract words from texts and help in detailed analysis. It also provides text and structured information [83]. It is more statistical than linguistic, allowing for summarization and providing little correlation among data [84].

In this study, the authors observed that collecting and extracting information from the database has a limited scope with Vosviewer-based literature review research papers. Therefore, here, we tried to employ text mining and some ML tools to extract patterns in keywords and project a holistic output [85].

Tourism and hospitality research has shown many enhancements in the last two decades. Many research articles are published, and there is an upward trend in journals' impact and popularity. Regarding tourism, there is minimal research on blockchain applications, mostly related to or embedded in smart tourism, human–machine interaction research, and AI subjects. After carefully analyzing the available articles and literature in the Web of Science database for this study, the researchers assume that the extraction of information and text-mining tools were not applied to blockchain tourism. It demands a requisite effort where all the articles must undergo TM to explore published topics and trends that can help industrial practitioners. Researchers want to explore the following research questions based on machine learning language and their programming or what we can analyze from their output.

RQ1: What is the word cloud for abstract, keywords, and predicted keywords of all extracted publications?
RQ2: What high-frequency keywords are used in all extracted publications collected from Web of Science in their titles and abstracts?
RQ3: Who are the prominent authors, and how does network analysis relate to them?
RQ4: What are the co-citation and citation networks among prominent researchers?

4. Methodology

For this study, we adopted the following architecture to identify the most frequent words used in the published blockchain in tourism indexed in the Web of Science database. We used a combination of text analysis, text extraction, and text classification using AI models [86]. Figure 2 represents the architecture of this research. The proposed architecture is categorized into four different parts:

a. Collection: The information collected by the Web of Science database is used to extract the most recent studies about blockchain in smart tourism. The data included all the inputs that were made from the database. The filtration procedure is utilized to determine the crucial parameter.
b. Preparation: After data collection, specific features are needed for this investigation. The primary purpose of filtration is to consider the parameters that can be used for further analysis. In the data analysis process, parameter selection is the crucial step to evaluate the collected data, and a wrong decision may result from the incorrect selection of essential factors. The process of choosing a feature is known as feature selection. It involves selecting the attributes that are useful or impactful for a given problem. By using only pertinent data and eliminating irrelevant data, feature selection is a technique for lowering the input variable to the model. The two main processes in machine learning are feature extraction and feature selection. Although the goal of both feature extraction and feature selection processes is the same, they are very different. The purpose of feature selection is to select the subset of the original features that apply to the given problem. In contrast, feature extraction is focused on creating new ones. It involves selecting the attributes that are useful or impactful for a given problem. Through feature selection, the goal is to reduce the amount of data the model has to fit to minimize its overfitting.
c. Selection: Parameters are also "selection criteria" that choose the information enclosed in the benefits point for further research. The parameters considered for this study are abstract, keywords, keywords plus, citations, and authors. These characteristics include sufficient data to emphasize the precise phrases considered in the earlier studies. The collected dataset consists of 72 input variables or parameters, but only abstract, keywords, keywords plus, citations, and authors are considered for this study.
d. Visualization: Visualization is placing information into a visual framework, such as a word cloud or two-dimensional graphs, to make communication more straightforward and to quickly understand and conclude an outcome. For this study, word cloud and frequency of the word are considered. A word cloud is the graphical representation that highlights frequently occurring terms more prominently. Similarly, in the frequency of words, words are represented from higher frequency to lower frequency.

Text mining is a process that can transform unstructured data into structured information. It can analyze various documents, such as social media posts and emails. It can also handle multilingual texts and similar words used in social media and detect the presence of multiple topics in a single sentence. They can also create taxonomy structures that help improve their extraction efficiency. Further, they can reveal patterns across the vast number of documents in your data set by analyzing the text. Here, for the use of tools of ML language, one keyword is sufficient because it can detect similar words already used. Thus, here, we used one keyword to search the research publications from the Web of Science database. We found 128 articles with the keyword "blockchain in smart tourism". Out of 128 papers, we excluded 34 from physical science backgrounds to reduce linguistic noise using the RapidMiner tool. Finally, we kept 94 articles for our study.

Most search tools use text classification, an unsupervised learning technique that enables them to sort documents into different categories. For instance, they can create a vector representation of a document containing unique words. Through its algorithm, RobotAnalyst learns to classify each paper according to its coefficients. For instance, if an article has a value of 0.5, it has a better chance of being categorized into a specific category [87].

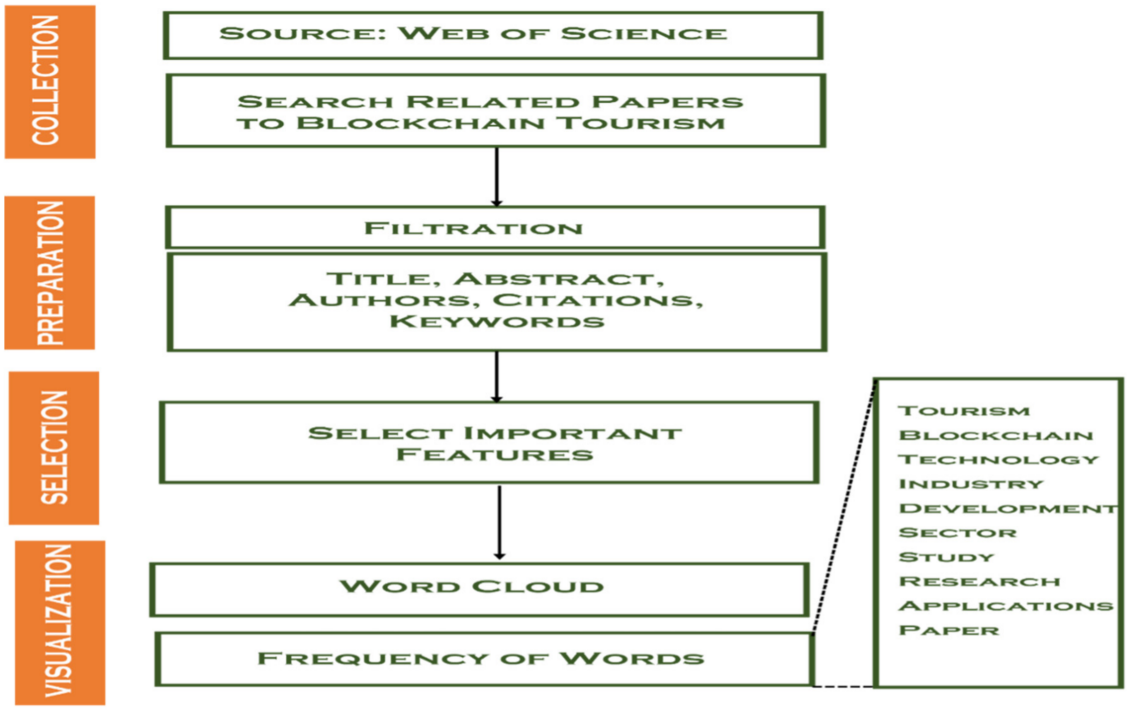

Figure 2. Architecture of proposed methodology. Source: Authors' conception.

The screening process aims to recommend relevant academic literature based on the interaction between humans and the documents they encounter. This process uses text classification techniques to classify the documents according to their coefficients. A logistic regression model analyzes the results to predict new papers' relevance with the information collected. An example of this process is Rayyan: a tool researchers use to find relevant documents. Rayyan learns by analyzing the data it has collected [88]. Once it has enough data to learn about the topic, it can recommend the most relevant papers based on the researcher's initial selection. Data extraction is a process utilized by ML programs to find and understand the text in documents [89]. ML techniques then add tags to the words extracted from the papers. This process is referred to as data extraction. Aside from searching, Robotreviewer also provides various tools for data extraction [90]. Table 1 and Figure 3 represent all the publication categories considered for this study.

Table 1. Selected journals and their record count.

Web of Science Categories	Record Count	Percentage
Hospitality Leisure Sport Tourism	34	36.17
Computer Science Information Systems	15	15.957
Management	15	15.957
Computer Science Interdisciplinary Applications	12	12.766
Computer Science Theory Methods	12	12.766
Business	9	9.574
Environmental Studies	9	9.574
Green Sustainable Science Technology	8	8.511
Telecommunications	8	8.511
Engineering Electrical Electronic	7	7.447
Computer Science Artificial Intelligence	6	6.383
Economics	6	6.383
Environmental Sciences	6	6.383
Computer Science Software Engineering	3	3.191
Public Environmental Occupational Health	3	3.191

Source: Web of Science.

Figure 3. Categories of publications filtered and considered for the study. Source: Web of Science.

5. Experimental Findings

We applied various TM tools to all the extracted research publications. To our best knowledge, the tools we used have not been previously used in other publications for blockchain in intelligent tourism. For this reason, the study and its findings are unique and give much value to the tourism research fraternity.

RQ1: What is the word cloud for abstract, keywords, and predicted keywords of all extracted publications?

A cloud is a collection of numerous words based on the frequency or importance of every expression referred to as a word cloud. Some literature points mainly focused on tourism, blockchain, and technology are more significant than the other words in the cloud. We can generate the word cloud for the "abstract" and "keywords" based on titles. Figures 4–6 represent the word cloud for the "abstract", "keywords", and "predicted keywords", respectively. The keywords and predicted keywords cloud are substantial because frequency of the word in a text is either in the "title" or the "trend". It is directly proportional to the size of the word in the cloud. Word clouds are generated from unstructured data.

Since they contain numerous minor words, such as conjunctions, punctuations, and adverbs, they should be "sanitized" and "preprocessed". These do not reveal anything about the subject domain or the text's semantic structure. Since they appear frequently, word clouds cause problems. They also reduce the weight of other meaningful words. Therefore, all punctuation marks and semantically significant parts of speech should be removed. Word clouds can be generated by implementing various programming languages. The word clouds are generated using the conference management system Kalimukov, which we developed and supported [91]. Figure 4 is generated from the abstracts, and Figure 5 represents keywords. Figure 6 shows the word cloud for the predicted keywords, which will help future researchers to explore this "blockchain in tourism" topic; then, this world cloud will give them a direction. The topics on which they can conduct the research will be more focused on these keywords, and there will be a more significant chance that journals will focus on them for their regular and special issues. Thus, overall, these word clouds will help researchers and journals to explore more on these topics more.

Figure 4. Word cloud for abstract. Source: Authors' analysis.

Figure 5. Word cloud for keywords. Source: Authors' analysis.

Figure 6. Word cloud for predicted words. Source: Authors' analysis.

RQ2: What high-frequency keywords are used in all extracted publications collected from Web of Science in their titles and abstracts?

Researchers used N-gram to identify the most frequent words [92,93]. The N-gram model predicts the occurrence of a word based on its N-1 previous work [94]. Figures 7 and 8 represent the word frequency analysis. Figure 7 illustrates the most frequent words in the "title" section. The most frequent terms in the titles are blockchain, tourism, and technology. Afterward, adoption and industry are used.

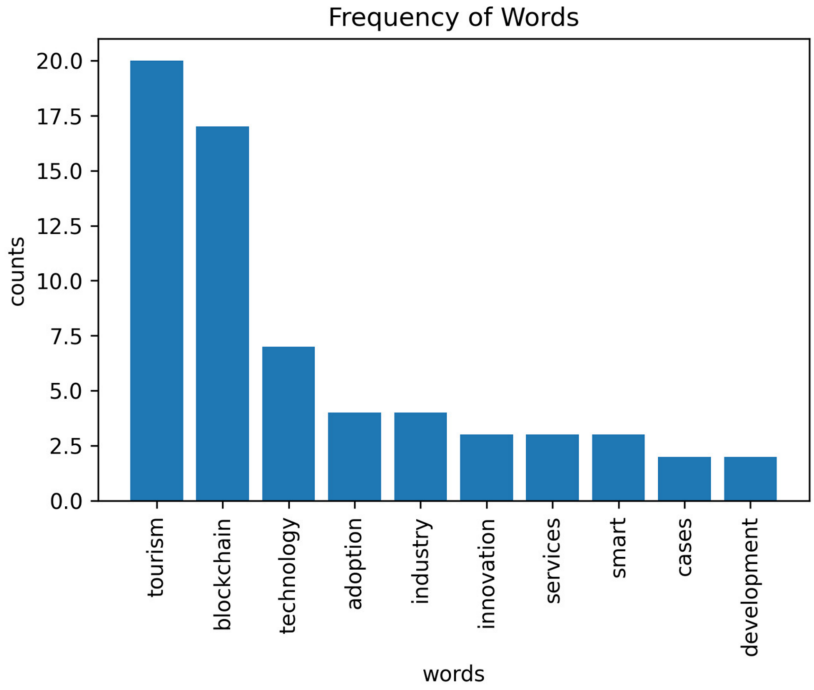

Figure 7. Frequency of words for the titles. Source: Authors' analysis.

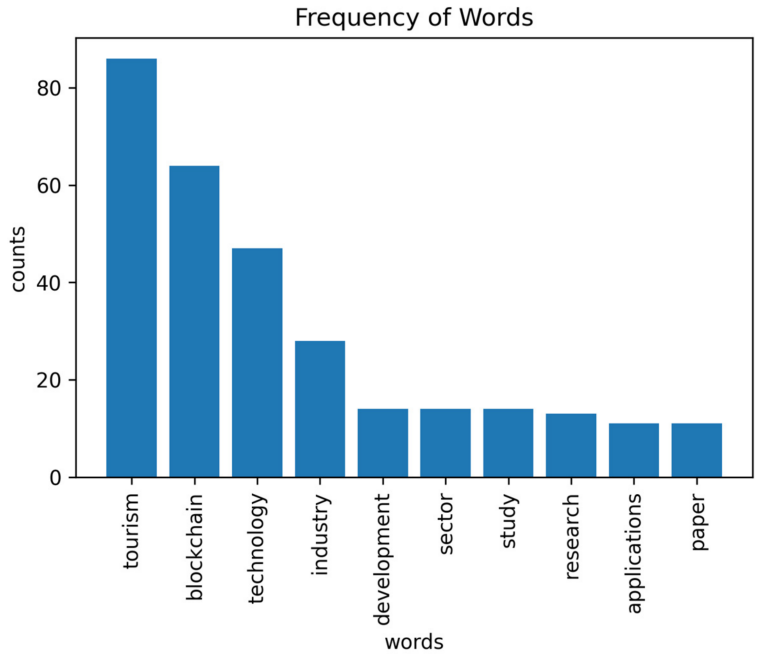

Figure 8. Frequency of words for the abstract. Source: Authors' analysis.

As in Figure 7, blockchain, technology, and tourism are the most frequently used in the title. However, there is a minor difference in the frequency of words used in Figures 7 and 8. In the analysis, the words are almost similar for title and abstract; only the frequency of the expression is shuffled. In Figures 4 and 7, the highest frequency is "tourism", and

the second most frequent word is "blockchain". Similarly, Figures 5 and 8 show that the highest frequency word is "tourism", followed by "blockchain". The frequency of words in titles shows what the terms present and their frequency. It will give an idea of how the researchers make the titles.

RQ3: Who are the prominent authors, and how does network analysis relate to them?

In 2018–2021, coauthors are publishing and have a strong network. Twenty-seven authors from 30 countries show strong weighted strength among themselves, as shown in Figure 9. Authors of major geographical distributions are mainly from the People's Republic of China, UAE, Canada, Austria, the UK, India, and Switzerland. All these coauthors have 45 papers among them.

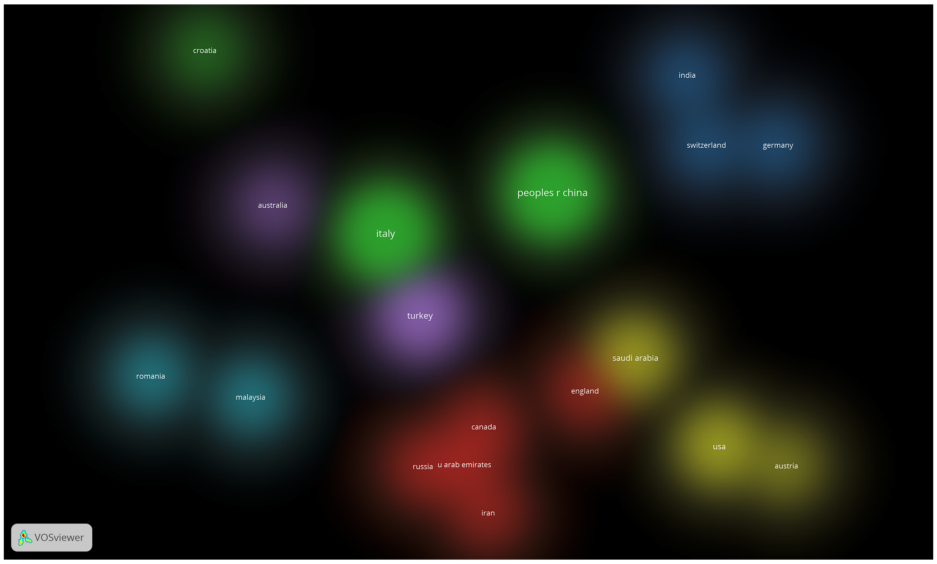

Figure 9. Citation and authors of countries. Source: Analysis by Authors through Vosviewer.

RQ4: What are the co-citation and citation networks among prominent researchers?

Figure 10 represents the citation network of prominent authors on blockchain in smart tourism. There are 4 clusters (blue, green, red, and yellow) of authors and their citation networks, and blue-clustered authors have maximum strength over green, red, and yellow. We can say blue ones are popular in this field. Ten researchers have a strong network among themselves, as shown in Figure 11.

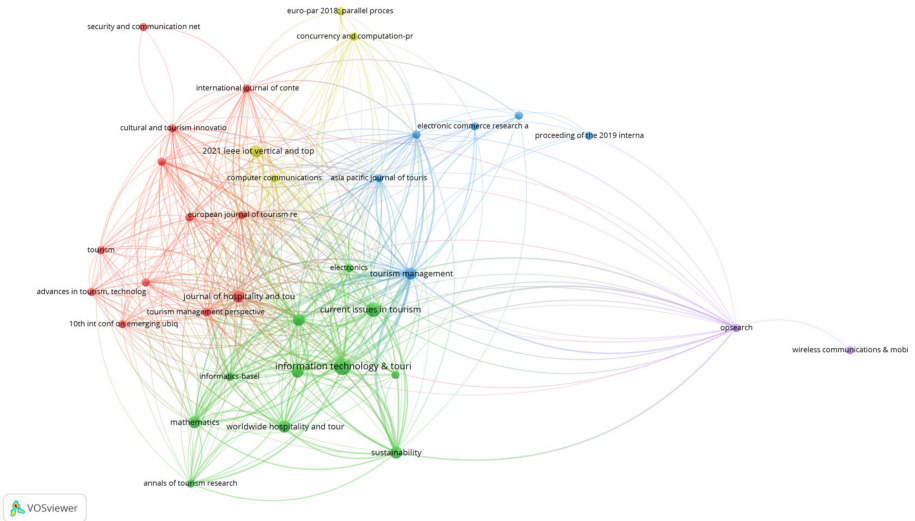

Figure 10. Citation and co-citation. Source: Analysis by Authors through Vosviewer.

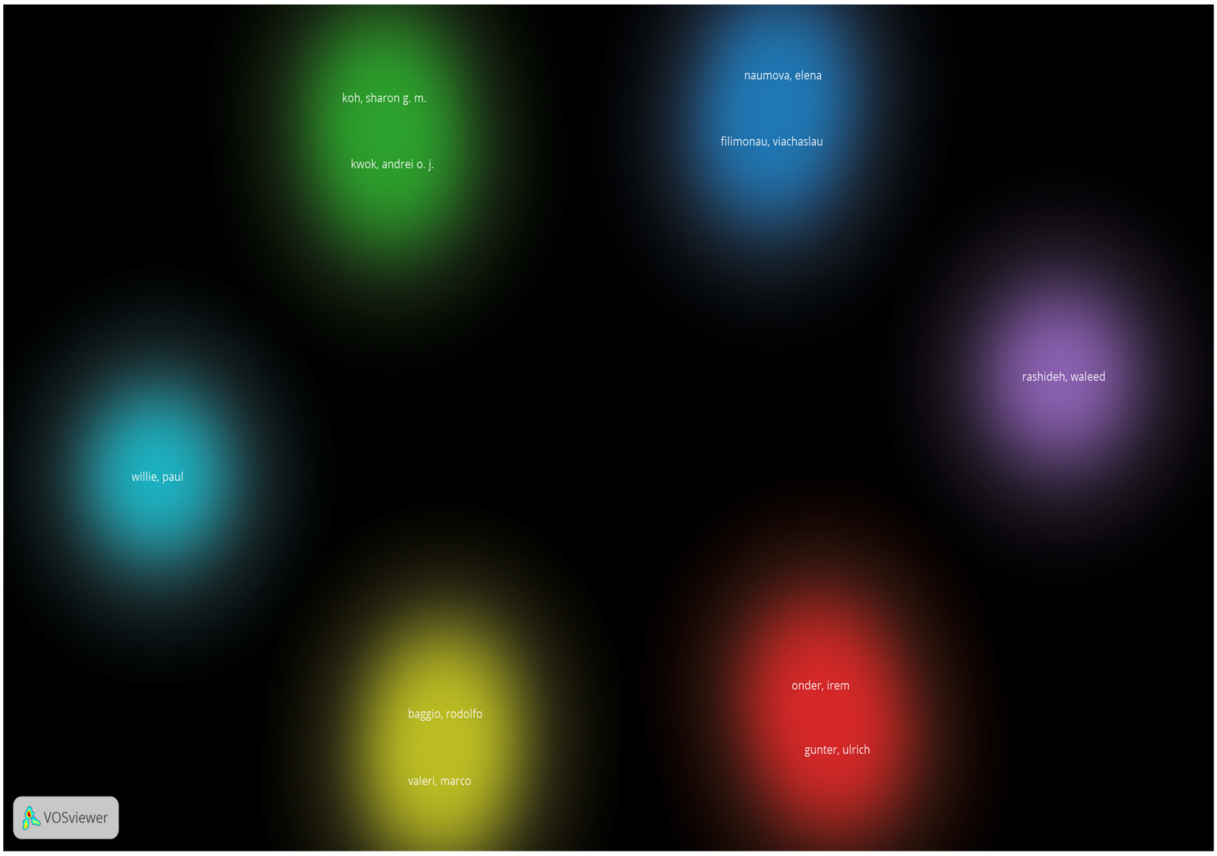

Figure 11. Coauthorship with author networks. Source: Analysis by Authors through Vosviewer.

6. Discussion

The analysis shows how the keywords revolve around three clusters tourism, blockchain, technology, and industry. The words in the title are also present in the abstract. Interestingly, words such as adoption, industry, and innovation are also used with the words smart and services. In addition, some words such as applications and development are present with blockchain. Therefore, we infer there may be a slow development trend pointing toward modern technology use for blockchain in the smart tourism domain by researchers.

Similarly, for smart tourism studies, many recent papers are exploring a new trend post-2019. Words such as development and sector, which were previously associated with tourism, are now linked with blockchain directly [95,96]. We argue that smart tourism is now exploring blockchain and new technology for innovative applications in tourism. Regarding tourism, the words do not have a drastic change. They are the same throughout the years of consideration.

Authors of prominent publications are very much strongly interrelated with each other. Generally, authors have used the terms technology, blockchain, and tourism in the abstracts more. Blockchain in tourism is directly represented under innovative tourism topics. However, authors explore new technology applications when we consider publications and predicted words in the title and abstract. Similarly, the term tourism has more frequency in titles than blockchain and technology.

Here, blockchain indeed argues for smart tourism in all the selected articles. Previous studies signify blockchain in smart tourism. Blockchain connects tourism with words such as the smart destination. The findings of this research will help future scholars in terms of guidance in employing ML in text mining [97]. This technique will help in enhancing their research ability. As several research publications are published in various streams, conventional research for literature review is fast becoming more impractical and complex, requiring a lot of time and effort from the researcher [98]. Data extraction and a reduction

will be smoother and more technical with text mining by mL tools. The ability to review the title, abstract, and full texts of an article within the same ML tools will undoubtedly save valuable time.

Consequently, applying ML tools for text mining brings a semiautomatic alternative to the systematic literature review research repertoire. It is a fact that ML will undoubtedly decrease the human effort in the systematic literature review, but still, human interventions are required. Therefore, we can hope one day the features of ML will be upgraded, which will make the process fully automated and ultimately limit human efforts. The scope of performing text analysis of various databases will undoubtedly increase the possibility of a more reliable, complete systematic review. These will certainly contribute to future research endeavors not only in tourism disciplines but also in others.

7. Practical Implication

In this novel study, we found the trend of blockchain in smart tourism studies that other researchers can use to form their titles and abstracts more effectively. Journals can use this research to propose special issues for bringing out more concerning research in blockchain in tourism. Researchers generally venture out for smart tourism studies. They are not so keen on blockchain in smart tourism. Though AI in tourism is somehow related to this scope of blockchain, it is something different. So, authors can now mainly be precise in their research of these areas. Within the domain of smart tourism, blockchain tourism will also attract many future researchers.

The technique of TM and its ML applications can also attract systematic literature review researchers for better exploration. We do believe that the future is for machines. Therefore, ML will slowly venture into tourism research, and researchers will benefit from this technology intrusion. Most contemporary researchers use hybrid methods and Vosviewer software for bibliography studies which are command-based. Thus, we think future researchers can explore different topics for educational use and practically explore more ML tools.

This paper aims to help general management and tourism scholars put ML into practice. It will provide them with the necessary characteristics to make informed decisions. We summarize these points as follows:

1. The type of literature review an ML system can perform differs depending on the software used. There are three main types of literature reviews that it can perform: searching, data extraction, and screening.
2. To choose the right tool for a particular type of review analysis, choose a set of tools with the necessary features.
3. Free and paid tools are also available. However, the choice should be based on the scope of the research.
4. Before using a free tool, the researchers must ensure that it has a trial period. A trial period may allow the researchers to try it out and see if it works well. Some free tools might not enable researchers to add more data to their projects.

8. Industry Implications

While we reviewed the papers, we also analyzed the trends of blockchain applications in smart tourism, which are discussed here. These applications are grouped under several clusters of applications as follows.

8.1. Investment

The COVID-19 outbreak has put a stop to travel around the world. It completely wrecked the travel and tourism sector, resulting in a USD 4.5 trillion GDP reduction and 62 million job losses in 2020. Additionally, there was a sharp decline in the amount of money invested in the travel and tourism sector, which fell from USD 986 billion in 2019 to USD 693 billion in 2020 [99]. One of the essential stages in expanding a nation's tourist

destinations is an investment in developing tourism infrastructure to make locations and services more alluring [100].

The expansion of the economy [101] and the growing number of wealthy aging people with spare time and money to travel continue to support the tourism sector. For the tourist industry to recover, visitors from domestic and foreign countries and financial investment are required. Local communities and governments must create a robust enabling environment for the tourism sector, which includes digital visitor management, contactless travel, and internet access between rural and urban locations.

Regarding tourism promotion, governments and tourism organizations continue to see a return on their investments. In this regard, blockchain technology acts as a game changer for tourism investment. Blockchain technology has an immutable decentralized platform [102], meaning data created on this platform cannot be changed or manipulated. Cryptocurrencies allow people to develop secure payment ecosystems that are more secure than traditional systems. Governments and the business sector can better design their investment strategies and tourism-related services with the support of more precise data generated by blockchain systems. Most international tourists and investors have to contend with national currencies, lack transparency when renting or purchasing real estate or timeshares, and even bear financial losses due to exorbitant exchange rates. The blockchain will allow travel-related businesses to support cryptocurrency transactions instead of services and design effective loyalty programs that reward their customers, and even rent, investment, and buying agreements can be tokenized as Non-Fungible Tokens (NFTs). With the emergence of the metaverse, blockchain technology can provide virtual pictures of the investment location in digital avatars. Recently, the crypto-tourism concept emerged. Two main categories may be used to categorize crypto-tourism [60,103]. The first refers to vacation packages and trips that are purchased via cryptocurrency. The second category of crypto-tourism includes excursions and vacation packages where attending crypto conferences, workshops, or lectures is a primary agenda item. More possibilities for investors to expand their investments in the locations are provided by crypto-tourism.

8.2. Customer Feedback

In today's connected world, a tourism business's success depends unquestionably on how well it uses customer feedback in its marketing. Before making a purchase, choosing, or visiting some destination, tourists now trust and consult online reviews due to the digital revolution, which is still in its infancy. People believe internet reviews lower their chances of wasting time and money [104]. It follows that an internet review affects the purchase of travel-related goods. Online reviews directly impact consumers' trust, which has additional effects on travel and business revenue. The downside of online reviews is that they can be tricked in various ways, and today's fraudulent online activity is widespread [105]. Customers can find flexible, affordable, and secure solutions in cloud computing even though researchers have reviewed and recommended some studies based on the role of cloud computing in customer reviews [106]. However, there is still a lack of trust in cloud computing because of single-point failure [107] and the possibility of data manipulation. Blockchain technology offers solutions to these issues because of its immutable nature [108]. With the Ethereum blockchain, smart contracts, and the InterPlanetary File System (IPFS), Salah [109] suggested an online trusted review system that offers a secure and transparent approach. The key concern with the online review system is that manipulated reviews mislead customers and cause problems for online businesses. Some studies [110] suggested a blockchain-based architecture to prevent fraudulent evaluations in online companies to address this issue. Centralized online review systems are susceptible to various threats that can be addressed through blockchain technology. Table 2 shows the review studies which researchers of this study primarily consider.

Table 2. Blockchain-based customer review studies published between 2020 and 2022.

Years and Authors	Methodology	Tools	Parameters
Fang (2020) [111]	Proposed blockchain-based Proof of Concept (POC) system for the online review system	• Hyperledger Fabric	• Throughput • Latency
Kugblenu (2020) [112]	Developed a private blockchain network for an E-commerce review system using the smart contract	• Hyperledger Fabric	-
Alhogail (2020) [113]	Smart contract-based blockchain network built on the Ethereum platform for e-commerce	• Ethereum	-
Paul (2021) [114]	Review analysis of fake review detection on the online review system: traditional and business solution	-	-
Mewada (2021) [115]	She presented thorough research on spotting bogus reviews in e-commerce and hotels.	-	• Data acquisition • False feature design • Detection technique
Karode (2022) [116]	She proposed a token-curated registry (TCR) integrated with a blockchain network to detect fake reviews. The smart contract is used to deploy the proposed approach.	-	• Probability of detecting fraudulent reviews • Centralized decision-making • Decentralized decision-making

Source: Authors' conception.

8.3. Hotel Booking

Hotels now rely on online travel firms to increase inventory exposure and booking. These networks showcase the hotels or properties with a higher profit margin; travelers are more likely to ignore small hotels. The network of travel brokers takes pride in its exclusive hotel portfolio, which effectively monopolizes the hotel business by preventing new competitors from entering the market. Consequently, blockchain technology can completely transform the operating procedures of travel agents' networks [117]. The blockchain provides the hotel sector with great potential to do away with third parties in the reservation process. It could wholly or partially eliminate the third-party operators and set up a system for the specific hotel akin to Agoda or Airbnb [118]. Blockchain-based booking networks might eventually assist the hotels in providing their reservation platform via cooperation and the shared goal to cut out the third party [119]. There are various benefits to booking accommodations through the blockchain. Hotels can be distributed in the form of a peer-to-peer network, and, more crucially, there is no participation of a third party if they are connected via the blockchain, allowing clients to book lodging at a low cost. Figure 12 represents the role of blockchain technology in the hotel booking ecosystem.

- Digital Verification: Tourists must use their passports or cloud-based identity verification to handle their personal information for identification [120]. Traditional verification methods are adequate, but they have a single point of failure and raise security and privacy issues. The shortcomings of the conventional method are improved by the blockchain network powered by smart contracts [121,122], which also successfully prevents the exposure of attribute ownership.
- Change Booking: The blockchain method allows the traveler to quickly change their reservation without the involvement of a third party [123]. Hotels are linked together through peer-to-peer networks because of distributed ledger technology. Additionally, there is transparency regarding the cost of booking accommodations, the availability of rooms and services, and customer information privacy.
- Loyalty Rewards Points: In the conventional hotel industry, travelers can only use their reward points to book discounted hotel rooms or receive complimentary hotel

amenities [5,124]. As a result, because traditional systems cannot establish a trust bridge between them, it is challenging for the vendor to develop a trustworthy network to take these points as payment. A loyalty rewards network that can be expanded to include external merchants such as malls, movie theaters, and amusement parks may be created using blockchain technology [125].

- Customer Reviews: Customer feedback is the most crucial component of hospitality and tourism. Hotels and other merchants may modify the customer reviews to promote demand for their lodgings [126]. Customers are therefore duped into engaging in fraudulent activity. Blockchain provides a reliable and transparent system for customer reviews, as discussed in the customer feedback section.

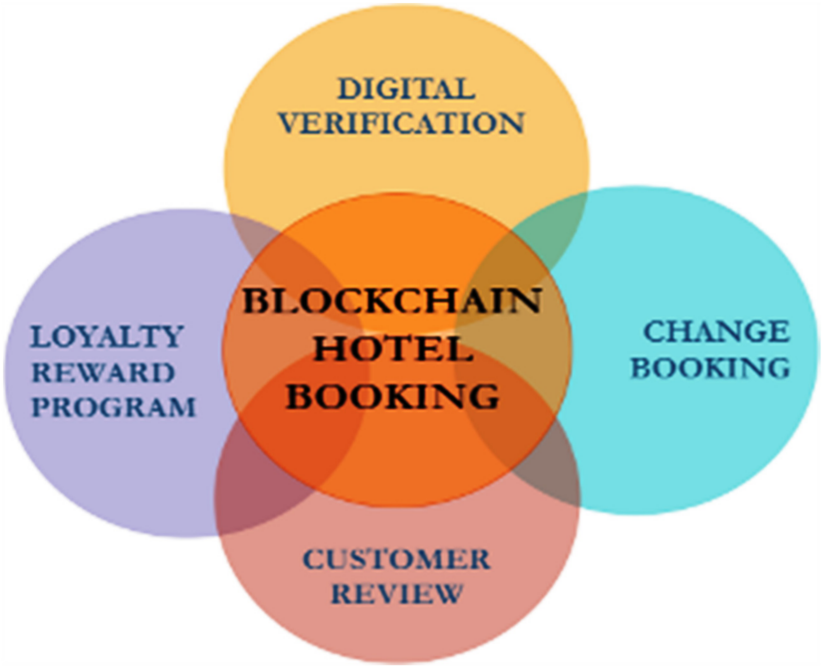

Figure 12. Role of the blockchain in the hotel booking ecosystem. Source: Authors' conception.

8.4. Car Rental

The car rental procedure has been significantly centralized, with the automobile rental agency serving as the driver's primary source of contact [127]. Owners of rental car agencies must maintain their fleet of vehicles, garages, and employees to run their businesses, which adds significantly to operating costs. These expenses placed a strain on the clients' wallets. There are many charges associated with car-sharing services, including a base charge, mileage charge, gas costs, and maintenance fees. The biggest problem with automobile rental services is a lack of trust because there is no face-to-face interaction with the driver, where fraud could occur [128]. The peer-to-peer blockchain network unlocks the potential of the automobile rental industry. The blockchain network and rental services are connected through smart contracts. It offers superior financial agreement services than conventional methods, including rental car or fare payments.

Additionally, due to the immutable nature of blockchain, it is challenging to manipulate the rental data in any way. Data about users will be protected via cryptography, and unlike typical businesses that do it for profit financially, it will not be disclosed to another company. There are various advantages to using blockchain-based car rental services: (1) system transparency, (2) customer feedback, (3) privacy and security (4) digital rental documents.

8.5. Donation Ecosystem

The latest technology is advancing quickly, and nonprofit organizations (NPOs) are being pushed to use this to their advantage, particularly regarding the contribution procedures for charities [129]. In general, NPOs rely on donations to fund their programs for the underprivileged, yet there is still concern that this money may be used for nefarious purposes [130,131]. The lack of transparency in donation systems makes them operate in a challenging financial environment [132]. The traditional approach has data manipulation, single-point failure, and a lack of security and privacy. To address these issues, which negatively affect donors' faith in the contribution process, a reliable traceability system for charitable gifts is unavoidable [133,134]. Blockchain technology can offer a reliable method for the ecosystem of charities [135,136]. The following are the key advantages of using the blockchain in the charity system: (1) ability to gather and safeguard the personal information of every donor participant; (2) dissemination of the network's data transparently to prevent fraud; and (3) the capacity to track where money is coming from and going.

8.6. Immersive Technological Implications in the Tourism Sector

The rise of virtual and augmented reality (VR) and the Web3 metaverse have revealed how these technologies can help tourism by allowing people to explore more of the world and experience it [137]. Back in 2015, virtual reality was a buzzword. However, it has gained widespread popularity due to the increasing affordability and accessibility of these technologies. Virtual reality is a type of computer-based technology that creates an immersive environment through a device such as a smartphone or a tablet. Augmented reality is a computer-based technology that uses various sensory elements to enhance the real world [138]. Due to the increasing popularity of virtual and augmented reality, travel and tourism applications are starting to incorporate these technologies into their offerings.

The concept known as Web 3.0 aims to address some of the most significant issues faced by the internet [139]. One of these is the control large-platform companies such as Facebook and Google have over users' data. With the help of blockchain technology, users would be able to have complete ownership of their digital assets and content. Despite this project's various issues, it is still expected to provide a more open and transparent internet environment. The Web 3.0 project is a building block of the metaverse, a massive available network that would allow users to experience the internet in a completely new way [140]. It is built on blockchain technology and will enable users to interact seamlessly with various objects and digital currencies. Data continuity is one of the most critical factors the metaverse will look at. Users can easily access their digital identities, payments, and communications [141]. Several major tech companies are investing in the metaverse to capitalize on its immense potential. One of these is Facebook, which recently rebranded its platform to Meta. There is a huge potential for various industries, such as education, gaming, social media, and commerce. It is still not clear how tourism and the metaverse will interact.

VR cannot yet provide a dimension that enables consumers to make informed decisions. Therefore, they need someone to accompany them in their choices. A tour operator should also express their opinion on the merits of their offers. Virtual reality is not a replacement for humans. It does not provide the same experiences as real life, such as the sense of touch, smell, and travel. Entirely robotic futurism is not desirable. It should be integrated into a package or circuit to make sense and be eco-friendly. Only tourism operators should be allowed to use it. The energy used by various components of this technology, such as cables and helmets, is very high. Its bulky design also prevents it from being easily transported.

8.7. Digitalization and the Role of SMEs in Tourism

Digital applications provide numerous opportunities for small- and medium-sized enterprises (SMEs) in tourism to expand their operations and deliver new services. These include gaining access to new markets, developing new business models, enhancing

visitors' experience, and delivering value to the consumers. Unfortunately, many of these businesses struggle to capitalize on technological advancements. The success of SMEs in the tourism industry depends on their ability to grow [142]. Therefore, they can capitalize on the opportunities that digitalization provides. These include establishing a comprehensive digital infrastructure, equipping employees, and adopting new technology. It is also essential that the tourism industry can develop the skills of its managers and workers. The authors discuss the challenges and opportunities of SMEs to recover the tourism sector below [143].

Different kinds of SMEs exist in the tourism industry. Digital training sessions and hands-on exercises can help improve the digital mindset of small- and medium-sized enterprises (SMEs) in the tourism industry [144]. Financial assistance can also be provided to help develop the infrastructure in remote areas. It is also essential that SMEs consider the traditional mindset regarding digital transformation. If they do not want to embrace the digital technology, then the solution is to integrate both traditional and digital elements.

First and foremost, their individual needs must be considered. The digital platforms available to the tourism industry can help SMEs reach their full potential. It can be accomplished through face-to-face interactions with them at a destination level. They can then enhance their communication with existing customers and expand their reach. The availability of digital platforms can also help the tourism industry's small- and medium-sized enterprises (SMEs) collaborate at a destination level. It can help them develop effective e-commerce strategies.

The digital footprint of consumers can also help the tourism industry's SMEs gain a deeper understanding of their customers' needs. It can help them develop effective marketing strategies and increase their market share. Collaboration among various stakeholders in the tourism industry can be facilitated using digital platforms. It can help build intelligent destinations. The rise of digital technology has revolutionized the tourism industry. It has affected the providers and consumers of the products and services that are involved in the industry. Despite the various technological changes in the tourism industry, consumers still play a vital role in marketing a destination. The multiple changes brought about by digital technology have affected the operations of the tourism industry. Due to the lack of resources and knowledge, the providers have difficulty navigating through the changes. Despite the various technological changes in the tourism industry, the benefits of digital technology are still available to small- and medium-sized enterprises.

9. Limitations and Future Research

We considered 94 articles for this study, whereas Web of Science has 128 papers on blockchain in smart tourism search. There may be some analytical output we missed. That will be another scope of research in which researchers can study social and physical science for blockchain in tourism. We have considered text mining and keyword word clouds for our study. Are other tools available in ML? We are not conversant with other devices, so researchers can explore different mechanisms that may give more in-depth analysis in the future. The citation and authorship analysis have not included the journal's prestige or popularity, which can be a limitation.

10. Limitations of Blockchain Implementation

a. Privacy and Security: Despite the security assurances blockchains make, they are still vulnerable to attack. For instance, if someone wants to access shared data within a particular blockchain, they only need one node to access it. It means that the easiest way to obtain access to this type of blockchain is by hacking its hardware. Unfortunately, this is not the only issue with blockchains. It can also be used to forge transactions.
b. Identity theft: One of the main advantages of blockchains is their democratic nature, which allows them to reach a consensus by voting on nodes that have an identity. Criminals can quickly enter a blockchain with multiple devices, and once they have

a majority, they can promptly approve transactions. This method ensures that the majority wins. However, there are some issues with consensus algorithm, for example, the exclusion and manipulation of minorities from the network

c. Transparency issues: The concept of transparency in the supply chain is a great idea, as it can provide everyone the closure to make ethical decisions. Because if a supply chain is transparent, the data of all its partners and customers will be transferred to the public blockchain. Unfortunately, it is not always a good idea to use public blockchains in a commercial setting. In a retail environment, complete transparency can be very unpleasant, as it allows everyone to see what is happening in the network in real-time. Though they have disadvantages, private blockchains can prevent people from viewing certain transactions. Since they can restrict the number of people participating, they can prevent the public from trusting the product. Like customers, businesses would rather not have their competitors access their data in the supply chain. It would prevent them from stealing their strategies, secrets, and intellectual property.
d. Lack of scalability: The scalability of a blockchain grows with it, increasing its vulnerability. Even if this is not convincing, more steps must be taken before implementing blockchain technology into business. One of the most critical factors when implementing blockchain technology is the availability of copies of every transaction on their network. The amount of data that is stored on a blockchain is enormous. It requires a large amount of storage space and the power to process it. Even if all the hardware, software, and digital components are met, regulating the blockchain will be nearly impossible.
e. Slow transaction process and energy consumption: The slow transaction speed is a significant issue hindering the adoption of blockchain technology in various applications. Due to its decentralized nature, the nodes must verify every transaction before it can be accepted as a block. In a centralized system, trust is placed in a central body, which can process millions of transactions daily. Despite the various initiatives to improve the speed of transactions on the blockchain, these solutions are still not enough to solve the issue.

11. Conclusions

Due to increasing awareness, the tourism industry has become one of the most popular trends. One of the main factors contributing to this industry's growth is the rapid emergence and evolution of information and communication technologies. Tourism is defined as an activity by two stakeholders: the individuals who enjoy the activity's benefits and the workers employed in it. This technological innovation is considered a third generation of the internet. It is more secure and user-friendly, allowing people to participate in the network without worrying about security and privacy. This paper provides an overview of the various aspects of blockchain technology and its potential applications in the tourism industry. It also explores the multiple steps in implementing this technology in the industry. A comprehensive review of the technology's implementation and application is required to evaluate its potential benefits. Despite the various advantages of blockchain technology, it is still not widely used in the tourism industry. Factors that prevent the tourism industry from adopting blockchain technology are the lack of experience and infrastructure. In addition, the lack of awareness about the technology among the various stakeholder groups is also a significant issue that prevents the industry from fully utilizing it. Despite the multiple factors that hinder the tourism industry from entirely using blockchain technology, it is still expected that the ecosystem will eventually develop and allow the industry to adopt the technology and transform its business models.

This manuscript concludes that there is some cluster of keywords that researchers have used for their research. Three sets comprise keywords such as technology adoption, industry innovation, and smart services, which attract researchers worldwide. The authors conclude that different aspects of technology use will attract future researchers. Here, the authors conclude that researchers can explore smart tourism using some keywords that are

making a dynamic trend. The trending keywords which will help the researchers to publish in the future are green eco-friendly blockchain, empowerment of metaverse, application of NFTs, smart contracts, crypto-tourism, and Ricardian contracts. If researchers target blockchain applications in tourism, they can explore these keywords' possibilities and base their research on them. This manuscript also provides a guideline by which researchers can use ML and semiautomatic literature review, limiting human intervention and command-based software applications to explore different management and tourism fields.

The study will add more valid and reliable output to blockchain and intelligent tourism studies. Tourism scholars may also benefit from the evidence-based explanation of current keywords, patterns of topics, and network analysis. Savvy researchers, tourist organizations, and OTAs with less knowledge of ML and its use for text mining can also learn how to use the tools in future studies.

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References

1. Kwok, A.O.J.; Koh, S.G.M. Is blockchain technology a watershed for tourism development? *Curr. Issues Tour.* **2018**, *22*, 2447–2452. [CrossRef]
2. Luo, L.; Zhou, J. BlockTour: A blockchain-based smart tourism platform. *Comput. Commun.* **2021**, *175*, 186–192. [CrossRef]
3. Erol, I.; Neuhofer, I.O.; Dogru, T.; Oztel, A.; Searcy, C.; Yorulmaz, A.C. Improving sustainability in the tourism industry through blockchain technology: Challenges and opportunities. *Tour. Manag.* **2022**, *93*, 104628. [CrossRef]
4. Nam, K.; Dutt, C.S.; Chathoth, P.; Khan, M.S. Blockchain technology for smart city and smart tourism: Latest trends and challenges. *Asia Pac. J. Tour. Res.* **2019**, *26*, 454–468. [CrossRef]
5. Irannezhad, E.; Mahadevan, R. Is blockchain tourism's new hope? *J. Hosp. Tour. Technol.* **2020**, *12*, 85–96. [CrossRef]
6. World Travel & Tourism Council (WTTC). Travel & Tourism Economic Impact. Available online: https://wttc.org/research/economic-impact/country-analysis (accessed on 29 October 2022).
7. Qin, X. Information and Data Analysis Based on Big Data and Blockchain Technology in Promoting the Development of Cultural Tourism Industry. *Secur. Commun. Netw.* **2022**, *2022*, 9400077. [CrossRef]
8. Raluca-Florentina, T. The Utility of Blockchain Technology in the Electronic Commerce of Tourism Services: An Exploratory Study on Romanian Consumers. *Sustainability* **2022**, *14*, 943. [CrossRef]
9. Balasubramanian, S.; Sethi, J.S.; Ajayan, S.; Paris, C.M. An enabling Framework for Blockchain in Tourism. *Inf. Technol. Tour.* **2022**, *24*, 165–179. [CrossRef]
10. Dadkhah, M.; Rahimnia, F.; Filimonau, V. Evaluating the opportunities, challenges, and risks of applying the blockchain technology in tourism: A Delphi study approach. *J. Hosp. Tour. Technol.* **2022**, *3*, 922–954. [CrossRef]
11. McKercher, B. What is the state of hospitality and tourism research—2018? *Int. J. Contemp. Hosp. Manag.* **2018**, *30*, 1234–1244. [CrossRef]
12. Viano, C.; Avanzo, S.; Cerutti, M.; Cordero, A.; Schifanella, C.; Boella, G. Blockchain tools for socio-economic interactions in local communities. *Policy Soc.* **2022**, *41*, 373–385. [CrossRef]
13. Rana, R.L.; Adamashvili, N.; Tricase, C. The Impact of Blockchain Technology Adoption on Tourism Industry: A Systematic Literature Review. *Sustainability* **2022**, *14*, 7383. [CrossRef]
14. Strebinger, A.; Treiblmaier, H. Profiling early adopters of blockchain-based hotel booking applications: Demographic, psychographic, and service-related factors. *Inf. Technol. Tour.* **2022**, *24*, 1–30. [CrossRef]
15. Özgit, H.; Adalıer, A. Can Blockchain technology help small islands achieve sustainable tourism? A perspective on North Cyprus. *Worldw. Hosp. Tour.* **2022**, *14*, 374–383. [CrossRef]
16. Verma, S.; Sheel, A. Blockchain for government organizations: Past, present and future. *J. Glob. Oper. Strateg. Sourc.* **2022**, *15*, 406–430. [CrossRef]

17. Strebinger, A.; Treiblmaier, H. Cultural roadblocks? Acceptance of blockchain-based hotel booking among individualistic and collectivistic travelers. *Inf. Technol. Tour.* **2022**, *3*, 891–906. [CrossRef]
18. Leal, F.; Veloso, B.; Malheiro, B.; Burguillo, J.C.; Chis, A.E.; González-Vélez, H. Stream-based explainable recommendations via blockchain profiling. *Integr. Comput. Aided Eng.* **2021**, *29*, 105–121. [CrossRef]
19. Trček, D. Cultural heritage preservation by using blockchain technologies. *Herit. Sci.* **2022**, *10*, 6. [CrossRef]
20. Pratt, M.G.; Kaplan, S.; Whittington, R. Essay: The Tumult over Transparency: Decoupling Transparency from Replication in Establishing Trustworthy Qualitative Research. *Adm. Sci. Q.* **2019**, *65*, 1–19. [CrossRef]
21. LaGrandeur, K. How safe is our reliance on AI, and should we regulate it? *AI Ethics* **2020**, *1*, 93–99. [CrossRef]
22. Cabitza, F.; Locoro, A.; Banfi, G. Machine Learning in Orthopedics: A Literature Review. *Front. Bioeng. Biotechnol.* **2018**, *6*, 75. [CrossRef] [PubMed]
23. Sabahi, S.; Parast, M.M. The impact of entrepreneurship orientation on project performance: A machine learning approach. *Int. J. Prod. Econ.* **2020**, *226*, 107621. [CrossRef]
24. Hamel, C.; Kelly, S.E.; Thavorn, K.; Rice, D.B.; Wells, G.A.; Hutton, B. An evaluation of DistillerSR's machine learning-based prioritization tool for title/abstract screening—Impact on reviewer-relevant outcomes. *BMC Med. Res. Methodol.* **2020**, *20*, 256. [CrossRef] [PubMed]
25. Peng, Y.; Huang, W. Using Blockchain Technology and Sharing Culture to Promote Sustainable Forest Management in Tribal Communities. *J. Environ. Public Health* **2022**, *2022*, 1529407. [CrossRef] [PubMed]
26. Rejeb, A.; Rejeb, K. Blockchain Technology in Tourism: Applications and Possibilities. *World Sci. News* **2019**, *137*, 119–144.
27. Aitken, R. Blockchain Startup TamTam Eyes Trillion Dollar Travel Industry Offering "Crypto". Forbes. 1 November 2016. Available online: https://www.forbes.com/sites/rogeraitken/2016/11/01/blockchain-startup-tamtam-eyes-trillion-dollar-travel-industry-offering-crypto/?sh=c27afa92b76e (accessed on 26 October 2022).
28. Gjerding, K. How Blockchain Technology Will Dominate The Travel Sector. Forbes. 28 March 2017. Available online: https://www.forbes.com/sites/forbesfinancecouncil/2017/03/28/how-blockchain-technology-will-dominate-the-travel-sector/?sh=3a76d8d29de5 (accessed on 30 October 2022).
29. Kowalewski, D.; McLaughlin, J.; Hill, A. Blockchain Will Transform Customer Loyalty Programs. Available online: https://hbr.org/2017/03/blockchain-will-transform-customer-loyalty-programs (accessed on 29 October 2022).
30. Kumar, A.; Liu, R.; Shan, Z. Is Blockchain a Silver Bullet for Supply Chain Management? Technical Challenges and Research Opportunities. *Decis. Sci.* **2019**, *51*, 8–37. [CrossRef]
31. Lin, H.C.; Han, X.; Lyu, T.; Ho, W.H.; Xu, Y.; Hsieh, T.C.; Zhu, L.; Zhang, L. Task-technology fit analysis of social media use for marketing in the tourism and hospitality industry: A systematic literature review. *J. Hosp. Tour. Technol.* **2020**, *32*, 2677–2715. [CrossRef]
32. Madanoglu, M.; Kizildag, M.; Ozdemir, O. Which bundles of corporate governance provisions lead to high firm performance among restaurant firms? *Int. J. Hosp. Manag.* **2018**, *72*, 98–108. [CrossRef]
33. Magowan, K. Blockchain Technology Moves into the Hospitality Industry. IT Chronicles. 15 February 2019. Available online: https://itchronicles.com/technology/blockchain-technology-moves-hospitality-industry/ (accessed on 22 October 2022).
34. Stoffey, S. *Revealing the Truth about Blockchain Myths: How Blockchain Works with Cryptocurrency: The Ethereum Platform*; Independently Published: Chicago, IL, USA, 2021.
35. Felin, T.; Lakhani, K. What Problems Will You Solve with Blockchain. MIT Sloan Management Review. 2018. Available online: http://eureka.sbs.ox.ac.uk/6888/ (accessed on 29 October 2022).
36. Dogru, T.; Mody, M.; Leonardi, C. Blockchain Technology & its Implications for the Hospitality Industry. Boston University. Available online: https://www.bu.edu/bhr/2018/02/13/blockchain-technology-its-implications-for-the-hospitality-industry/ (accessed on 25 September 2022).
37. Firdaus, A.; Razak, M.F.A.; Feizollah, A.; Hashem, I.A.T.; Hazim, M.; Anuar, N.B. The rise of "blockchain": Bibliometric analysis of blockchain study. *Scientometrics* **2019**, *120*, 1289–1331. [CrossRef]
38. Härdle, W.K.; Harvey, C.R.; Reule, R.C.G. Understanding Cryptocurrencies. *SSRN Electron. J.* **2019**, *18*, 181–208. [CrossRef]
39. Sekuloska, J.D.; Erceg, A. Employment of the smart contracts in the practicing of the franchising business model. *Appl Comput Technol ACT* **2018**, 47.
40. Springer, S.; Chua, A. *The Blockchain Blueprint: A Practical Guide to Crypto in an Impractical Age of Fiat*; Native Assets: Lagos, Nigeria, 2021.
41. Aghaei, H.; Naderibeni, N.; Karimi, A. Designing a tourism business model on block chain platform. *Tour. Manag. Perspect.* **2021**, *39*, 100845. [CrossRef]
42. Asadi Bagloee, S.; Tavana, M.; Withers, G.; Patriksson, M.; Asadi, M. Tradable mobility permit with Bitcoin and Ethereum—A Blockchain application in transportation. *IEEE Internet Things J.* **2019**, *8*, 100103. [CrossRef]
43. Buhalis, D.; Harwood, T.; Bogicevic, V.; Viglia, G.; Beldona, S.; Hofacker, C. Technological disruptions in services: Lessons from tourism and hospitality. *J. Serv. Manag.* **2019**, *30*, 484–506. [CrossRef]
44. Bulut, E. Blockchain-based entrepreneurial finance: Success determinants of tourism initial coin offerings. *Curr. Issues Tour.* **2021**, *25*, 1767–1781. [CrossRef]

45. Chagetha, R. The Three Generations of The Blockchain Technology—BTC Wires. BTC Wires—Asia's Leading Blockchain News Platform. 7 December 2018. Available online: https://www.btcwires.com/block-o-pedia/the-three-generations-of-the-Blockchain-technology/ (accessed on 30 September 2022).
46. Farris, G.; Pinna, A.; Baralla, G.; Tonelli, R.; Modica, P.; Marchesi, M. Design of a Blockchain-Oriented System for the Sustainable Disintermediation in Tourism. In Proceedings of the 2021 IoT Vertical and Topical Summit for Tourism, Cagliari, Italy, 20–24 September 2021.
47. Feng, L.; Yiting, Q.; Xiaohan, Z.; Yuqi, Z.; Shiyi, L. Formulation of Silver Tourism Digital Industry Service Platform Based on Blockchain and Internet of Things: Taking Shanghai Chongming Island as an Example. In Proceedings of the 2021 IEEE International Conference on Consumer Electronics and Computer Engineering (ICCECE), Guangzhou, China, 15–17 January 2021.
48. Fenwick, M.; Vermeulen, E.P.M. The Lawyer of the Future as "Transaction Engineer": Digital Technologies and the Disruption of the Legal Profession. In *Legal Tech, Smart Contracts and Blockchain*; Springer: Singapore, 2019; pp. 253–272.
49. Floyd, D. Deloitte: 3 out of 4 Big Companies See "Compelling" Case for Blockchain. CoinDesk. 15 May 2018. Available online: https://www.coindesk.com/markets/2018/05/15/deloitte-3-out-of-4-big-companies-see-compelling-case-for-blockchain/ (accessed on 5 October 2022).
50. Ozdemir, A.I.; Ar, I.M.; Erol, I. Assessment of blockchain applications in travel and tourism industry. *Qual. Quant.* **2019**, *54*, 1549–1563. [CrossRef]
51. Scarlato, M.; Catte, M.; Massidda, C.; Modica, P.; Pinna, A.; Piras, R.; Tonelli, R.; Jeon, M. BATDIV: A Blockchain-based Approach for Tourism Data Insertion and Visualization. In Proceedings of the 2021 IoT Vertical and Topical Summit for Tourism, Cagliari, Italy, 20–24 September 2021.
52. Sixtin, E. TUI Tourism Group Will Adopt Ethereum's Blockchain. Crypto.News. 2 July 2017. Available online: https://crypto.news/tui-tourism-group-to-adopt-ethereums-blockchain/ (accessed on 12 September 2022).
53. Treiblmaier, H. The token economy as a key driver for tourism: Entering the next phase of blockchain research. *Ann. Tour. Res.* **2021**, *91*, 103177. [CrossRef]
54. Van, N.T.T.; Vrana, V.; Duy, N.T.; Minh, D.X.H.; Dzung, P.T.; Mondal, S.R.; Das, S. The Role of Human–Machine Interactive Devices for Post-COVID-19 Innovative Sustainable Tourism in Ho Chi Minh City, Vietnam. *Sustainability* **2020**, *12*, 9523. [CrossRef]
55. Zhang, L.; Hang, L.; Jin, W.; Kim, D. Interoperable Multi-Blockchain Platform Based on Integrated REST APIs for Reliable Tourism Management. *Electronics* **2021**, *10*, 2990. [CrossRef]
56. Demirel, E.; Karagöz Zeren, S.; Hakan, K. Smart contracts in tourism industry: A model with blockchain integration for post pandemic economy. *Curr. Issues Tour.* **2022**, *25*, 1895–1909. [CrossRef]
57. Verma, S.; Yadav, N. Past, Present, and Future of Electronic Word of Mouth (EWOM). *J. Interact. Mark* **2021**, *53*, 111–128. [CrossRef]
58. Haq, M.I.U.; Li, Q.; Hassan, S. Text Mining Techniques to Capture Facts for Cloud Computing Adoption and Big Data Processing. *IEEE Access* **2019**, *7*, 162254–162267. [CrossRef]
59. Salloum, S.A.; Al-Emran, M.; Monem, A.A.; Shaalan, K. A Survey of Text Mining in social media: Facebook and Twitter Perspectives. *Adv. Sci. Technol. Eng. Syst. J.* **2017**, *2*, 127–133. [CrossRef]
60. Pi, J.; Fan, Y. The impact of robots on equilibrium unemployment of unionized workers. *IREF* **2021**, *71*, 663–675. [CrossRef]
61. Zanzotto, F.M. Viewpoint: Human-in-the-loop Artificial Intelligence. *J. Artif. Intell. Res.* **2019**, *64*, 243–252. [CrossRef]
62. Ansari, F.; Kohl, L.; Giner, J.; Meier, H. Text mining for AI enhanced failure detection and availability optimization in production systems. *CIRP Ann.* **2021**, *70*, 373–376. [CrossRef]
63. Blanco-Ruiz, M.; Sainz-de-Baranda, C.; Gutiérrez-Martín, L.; Romero-Perales, E.; López-Ongil, C. Emotion Elicitation Under Audiovisual Stimuli Reception: Should Artificial Intelligence Consider the Gender Perspective? *Int. J. Environ. Res. Public Health* **2020**, *17*, 8534. [CrossRef]
64. Watanabe, W.M.; Felizardo, K.R.; Candido, A.; De Souza, R.F.; Neto, J.E.D.C.; Vijaykumar, N.L. Reducing efforts of software engineering systematic literature reviews updates using text classification. *Inf. Softw. Technol.* **2020**, *128*, 106395. [CrossRef]
65. Porciello, J.; Ivanina, M.; Islam, M.; Einarson, S.; Hirsh, H. Accelerating evidence-informed decision-making for the Sustainable Development Goals using machine learning. *Nat. Mach. Intell.* **2020**, *2*, 559–565. [CrossRef]
66. Chatterjee, S.; Goyal, D.; Prakash, A.; Sharma, J. Exploring healthcare/health-product ecommerce satisfaction: A text mining and machine learning application. *J. Bus. Res.* **2021**, *131*, 815–825. [CrossRef]
67. Krótkiewicz, M. A novel inheritance mechanism for modeling knowledge representation systems. *Comput. Sci. Inf. Sys.* **2021**, *15*, 51–78. [CrossRef]
68. Hu, X.; Xu, X.; Xiao, Y.; Chen, H.; He, S.; Qin, J.; Heng, P.A. SINet: A Scale-Insensitive Convolutional Neural Network for Fast Vehicle Detection. *IEEE Trans. Intell. Transp. Syst.* **2019**, *20*, 1010–1019. [CrossRef]
69. Begum, S. Information Extraction from Text using Text Mining. *Int. J. Eng. Innov. Technol.* **2020**, *9*, 22–24.
70. Ayele, F. Text Mining Technique for Driving Potentially Valuable Information from Text. *J. Inf. Knowl. Manag.* **2020**, *10*, 1–4.
71. Lakshmi, R.; Baskar, S. Efficient text document clustering with new similarity measures. *Int. J. Bus. Intell. Data Min.* **2021**, *18*, 49. [CrossRef]
72. Ren, X.; Han, J. *Mining Structures of Factual Knowledge from Text: An Effort-Light Approach*; Synthesis Lectures on Data Mining and Knowledge Discovery; Springer: Cham, Switzerland, 2018; Volume 10, pp. 1–199.
73. Yusuf, S.E.; Hong, J.B.; Ge, M.; Kim, D.S. Composite Metrics for Network Security Analysis. *Converg. Secur.* **2017**, *1*, 59–82. [CrossRef]

74. Shivakumara, P.; Alaei, A.; Pal, U. Mining text from natural scene and video images: A survey. *Wiley Interdiscip. Rev. Data. Min. Knowl. Discov.* **2021**, *11*, e1428. [CrossRef]
75. Porter, A.L.; Chiavetta, D.; Newman, N.C. Measuring tech emergence: A contest. *Technol. Forecast. Soc. Chang.* **2020**, *159*, 120176. [CrossRef]
76. Lehr, D. Guest Editorial: Completion-System Reliability: Where Have We Been and Where Are We Going? *J. Pet. Technol.* **2019**, *71*, 14–15. [CrossRef]
77. Rüdiger, M.; Antons, D.; Salge, T.O. From Text to Data: On The Role and Effect of Text Preprocessing in Text Mining Research. *Acad. Manag. Proc.* **2017**, *1*, 16353. [CrossRef]
78. Antons, D.; Grünwald, E.; Cichy, P.; Salge, T.O. The application of text mining methods in innovation research: Current state, evolution patterns, and development priorities. *R D Manag.* **2020**, *50*, 329–351. [CrossRef]
79. Sarica, S.; Luo, J. Stopwords in technical language processing. *PLoS ONE* **2021**, *16*, e0254937. [CrossRef] [PubMed]
80. Jatain, A. Data Mining Applications for Predicting the COVID-19 Pattern. *Int. J. Data Min. Emerg. Technol.* **2020**, *10*, 55–62. [CrossRef]
81. Sohrabi, B.; Khalilijafarabad, A. Systematic method for finding emergence research areas as data quality. *Technol. Forecast. Soc. Chang.* **2018**, *137*, 280–287. [CrossRef]
82. Jayashankar, S.; Sridaran, R. Superlative model using word cloud for short answers evaluation in eLearning. *Educ. Inf. Technol.* **2016**, *22*, 2383–2402. [CrossRef]
83. DePaolo, C.A.; Wilkinson, K. Get Your Head into the Clouds: Using Word Clouds for Analyzing Qualitative Assessment Data. *TechTrends* **2014**, *58*, 38–44. [CrossRef]
84. Sinclair, J.; Cardew-Hall, M. The folksonomy tag cloud: When is it useful? *J. Inf. Sci.* **2007**, *34*, 15–29. [CrossRef]
85. Albashir, T.M.; Alzoubi, H.; Albatainih, M. Improving Arabic Instant Machine Translation: The Case of Arabic Triangle of Language. *J. Comput. Sci.* **2020**, *16*, 956–965. [CrossRef]
86. Kabir, A.I.; Karim, R.; Newaz, S.; Hossain, M.I. The Power of Social Media Analytics: Text Analytics Based on Sentiment Analysis and Word Clouds on R. *Inform. Econ.* **2018**, *22*, 25–38. [CrossRef]
87. Robledo, S.; Grisales Aguirre, A.M.; Hughes, M.; Eggers, F. "Hasta la vista, baby"—Will machine learning terminate human literature reviews in entrepreneurship? *J. Small Bus. Manag.* **2021**, 1–30. [CrossRef]
88. Rapid Miner. What Is Machine Learning? 6 September 2022. Available online: https://rapidminer.com/glossary/machine-learning/ (accessed on 5 December 2022).
89. Rayyan Systems. Intelligent Systematic Review. Rayyan. 4 August 2022. Available online: https://www.rayyan.ai/ (accessed on 5 December 2022).
90. Das, S.; Mondal, S.; Puri, V.; Vrana, V. Structural review of relics tourism by text mining and machine learning. *JTHSM* **2022**, *8*, 25–34.
91. Kalmukov, Y. Architecture of a conference management system providing advanced paper assignment features. *arXiv* **2011**, arXiv:1111.6934.
92. Brown, P.F.; Della Pietra, V.J.; Desouza, P.V.; Lai, J.C.; Mercer, R.L. Class-based n-gram models of natural language. *Comput. Linguist.* **1992**, *18*, 467–480.
93. Xiao, D.; Li, Y.K.; Zhang, H.; Sun, Y.; Tian, H.; Wu, H.; Wang, H. ERNIE-Gram: Pre-training with explicitly n-gram masked language modeling for natural language understanding. *arXiv* **2020**, arXiv:2010.12148.
94. García, M.; Maldonado, S.; Vairetti, C. Efficient n-gram construction for text categorization using feature selection techniques. *Intell. Data Anal.* **2021**, *25*, 509–525. [CrossRef]
95. Rezaei, N.; Ghaderi, Z.; Ghanipour, M. Heritage tourism and place-making: Investigating the users' perspectives towards Sa'd al-Saltaneh Caravanserai in Qazvin, Iran. *J. Herit. Tour.* **2021**, *17*, 204–221. [CrossRef]
96. Duy, N.T.; Mondal, S.R.; Van, N.T.T.; Dzung, P.T.; Minh, D.X.H.; Das, S. A Study on the Role of Web 4.0 and 5.0 in the Sustainable Tourism Ecosystem of Ho Chi Minh City, Vietnam. *Sustainability* **2020**, *12*, 7140. [CrossRef]
97. Singh, S.; Mondal, S.; Singh, L.B.; Sahoo, K.K.; Das, S. An Empirical Evidence Study of Consumer Perception and Socioeconomic Profiles for Digital Stores in Vietnam. *Sustainability* **2020**, *12*, 1716. [CrossRef]
98. Sharma, E.; Das, S. Integrated model for women empowerment in rural India. *J. Int. Dev.* **2021**, *33*, 594–611. [CrossRef]
99. Nguyen, Q.H. Impact of Investment in Tourism Infrastructure Development on Attracting International Visitors: A Nonlinear Panel ARDL Approach Using Vietnam's Data. *Economies* **2021**, *9*, 131. [CrossRef]
100. Investing in Tourism and Travel. Available online: https://wttc.org/ (accessed on 10 December 2022).
101. Ranasinghe, R.; Gangananda, N.; Bandara, A.; Perera, P. Role of Tourism in the Global Economy: The Past, Present and Future. *J. Manag. Tour. Res.* **2021**, *4*, vi–xxii.
102. Puri, V.; Priyadarshini, I.; Kumar, R.; Van Le, C. Smart contract based policies for the Internet of Things. *Cluster Comput.* **2021**, *24*, 1675–1694. [CrossRef]
103. Tlili, A.; Altinay, F.; Altinay, Z.; Zhang, Y. Envisioning the future of technology integration for accessible hospitality and tourism. *Int. J. Contemp. Hosp. Manag.* **2021**, *33*, 4460–4482. [CrossRef]
104. Gretzel, U.; Yoo, K.H. Use and impact of online travel reviews. *Inf. Commun. Technol. Tour.* **2008**, *2008*, 35–46. [CrossRef]
105. Gössling, S.; Hall, C.M.; Andersson, A.C. The manager's dilemma: A conceptualization of online review manipulation strategies. *Curr. Issues Tour.* **2018**, *21*, 484–503. [CrossRef]

106. Al Hadwer, A.; Tavana, M.; Gillis, D.; Rezania, D. A systematic review of organizational factors impacting cloud-based technology adoption using Technology-organization-environment framework. *IEEE Internet Things J.* **2021**, *15*, 100407. [CrossRef]
107. Chen, D.; Zhang, D.; Tao, F.; Liu, A. Analysis of customer reviews for product service system design based on cloud computing. *Procedia CIRP* **2019**, *83*, 522–527. [CrossRef]
108. Puri, V.; Kataria, A.; Sharma, V. Artificial intelligence-powered decentralized framework for Internet of Things in Healthcare 4.0. *Trans. Emerg. Telecommun. Technol.* **2021**, e4245. [CrossRef]
109. Salah, K.; Alfalasi, A.; Alfalasi, M. A blockchain-based system for online consumer reviews. In Proceedings of the IEEE INFOCOM 2019-IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS) Paris, France, 29 April–2 May 2019; IEEE: Piscataway, NJ, USA, 2019; pp. 853–858.
110. Dwivedi, S.K.; Obaidat, M.S.; Amin, R.; Vollala, S. Decentralized management of online user reviews with immutability using IPFS and Ethereum blockchain. In Proceedings of the 2022 International Mobile and Embedded Technology Conference (MECON), Noida, India, 10–11 March 2022; IEEE: Piscataway, NJ, USA, 2022; pp. 534–539.
111. Fang, X.; Asghar, M.R. RevBloc: A Blockchain-Based Secure Customer Review System. In Proceedings of the 2020 IEEE 19th International Conference on Trust, Security and Privacy in Computing and Communications (TrustCom), Guangzhou, China, 29 December 2020–1 January 2021; IEEE: Piscataway, NJ, USA, 2021; pp. 1250–1259.
112. Karode, T.; Werapun, W. Robustness against fraudulent activities of a blockchain-based online review system. *Peer Peer Netw. Appl.* **2022**, *15*, 92–106. [CrossRef]
113. Kugblenu, C.; Vuorimaa, P. Decentralized reputation system on a permissioned blockchain for E-commerce reviews. In Proceedings of the 17th International Conference on Information Technology–New Generations (ITNG 2020), Las Vegas, NV, USA, 5–8 April 2020; Springer: Cham, Switzerland, 2020; pp. 177–182.
114. Alhogail, A.; Alhudhayf, G.; Alanzy, J.; Altalhi, J.; Alghunaim, S.; Alnasser, S. Trusted Reviews: Applying Blockchain Technology to Achieve Trusted Reviewing System. In *Advances in Parallel & Distributed Processing, and Applications*; Springer: Cham, Switzerland, 2021; pp. 119–131.
115. Paul, H.; Nikolaev, A. Fake review detection on online E-commerce platforms: A systematic literature review. *Data Min. Knowl. Discov.* **2021**, *35*, 1830–1881. [CrossRef]
116. Mewada, A.; Dewang, R.K. Research on False Review Detection Methods: A state-of-the-art review. *J. King Saud Univ.-Comput. Inf. Sci.* **2021**, *34*, 7530–7546. [CrossRef]
117. Ampountolas, A.; Chiffer, E. Will blockchain shift Online Travel Agencies toward growth or to an end? *Tour. Econ.* **2022**, *28*, 1342–1347. [CrossRef]
118. Krietemeyer, M.L. Blockchain Technologies' Influence on Hotel Bookings. Bachelor's Thesis, Haaga-Helia University of Applied Sciences, Helsinki, Finland, 2019.
119. Willie, P. Can all sectors of the hospitality and tourism industry be influenced by the innovation of blockchain technology? *Worldw. Hosp. Tour. Themes.* **2019**, *11*, 112–120. [CrossRef]
120. Gahlawat, M. Survey of Online Identity Management Techniques on Blockchain. *IJSPPC* **2020**, *12*, 19–28. [CrossRef]
121. Yang, X.; Li, W. A zero-knowledge-proof-based digital identity management scheme in blockchain. *Comput. Secur.* **2020**, *99*, 102050. [CrossRef]
122. Liu, Y.; He, D.; Obaidat, M.S.; Kumar, N.; Khan, M.K.; Choo, K.K.R. Blockchain-based identity management systems: A review. *J. Netw. Comput. Appl.* **2020**, *166*, 102731. [CrossRef]
123. Barkel, C.; Kurgun, H.; Groen, B. Blockchain in the Hospitality and Tourism Industry. *Univ. South Fla. M3 Cent. Publ.* **2021**, *17*, 4.
124. Perez, L.J.D.; Ibarra, L.; Alejandro, G.F.; Rumayor, A.; Lara-Alvarez, C. A loyalty program based on Waves blockchain and mobile phone interactions. *Knowl. Eng. Rev.* **2020**, *35*, 216233530.
125. Thees, H.; Erschbamer, G.; Pechlaner, H. The application of blockchain in tourism: Use cases in the tourism value system. *Eur. J. Tour. Res.* **2020**, *26*, 2602. [CrossRef]
126. Shi, X.; Yao, S.; Luo, S. Innovative platform operations with the use of technologies in the blockchain era. *Int. J. Prod. Res.* **2021**, 1–19. [CrossRef]
127. Kim, M.; Lee, J.; Park, K.; Park, Y.; Park, K.H.; Park, Y. Design of secure decentralized car-sharing system using blockchain. *IEEE Access* **2021**, *9*, 54796–54810. [CrossRef]
128. Joo, J.; Park, J.; Han, Y. Applications of Blockchain and smart contract for sustainable tourism ecosystems. In *Evolutionary Computing and Mobile Sustainable Networks*; Springer: Singapore, 2021; pp. 773–780.
129. Shaheen, E.; Hamed, M.A.; Zaghloul, W.; Al Mostafa, E.; El Sharkawy, A.; Mahmoud, A.; Labeb, A.; Al Enany, M.O.; Attiya, G. A Track Donation System Using Blockchain. In Proceedings of the 2021 International Conference on Electronic Engineering (ICEEM), Menouf, Egypt, 3–4 July 2021; IEEE: Piscataway, NJ, USA, 2021; pp. 1–7.
130. Almaghrabi, A.; Alhogail, A. Blockchain-based donations traceability framework. *J. King Saud Univ.-Comput. Inf. Sci.* **2022**, *34*, 9442–9454. [CrossRef]
131. Erceg, A.; Damoska Sekuloska, J.; Kelić, I. Blockchain in the Tourism Industry—A Review of the Situation in Croatia and Macedonia. *Informatics* **2020**, *7*, 5. [CrossRef]
132. Nanayakkara, S.; Perera, S.; Senaratne, S.; Weerasuriya, G.T.; Bandara, H.M.N.D. Blockchain and Smart Contracts: A Solution for Payment Issues in Construction Supply Chains. *Informatics* **2021**, *8*, 36. [CrossRef]

133. Liao, D.-Y.; Wang, X. Applications of Blockchain Technology to Logistics Management in Integrated Casinos and Entertainment. *Informatics* **2018**, *5*, 44. [CrossRef]
134. Mohammad, A.; Vargas, S. Barriers Affecting Higher Education Institutions' Adoption of Blockchain Technology: A Qualitative Study. *Informatics* **2022**, *9*, 64. [CrossRef]
135. Chukleang, T.; Jandaeng, C. Security Enhancement in Smart Logistics with Blockchain Technology: A Home Delivery Use Case. *Informatics* **2022**, *9*, 70. [CrossRef]
136. Torky, M.; Goda, E.; Snasel, V.; Hassanien, A.E. COVID-19 Contact Tracing and Detection-Based on Blockchain Technology. *Informatics* **2021**, *8*, 72. [CrossRef]
137. Das, S.; Mondal, S.R.; Sandhu, K. Music logos drive digital brands: An empirical analysis of consumers' perspective. *J. Strateg. Mark.* **2022**, 1–16. [CrossRef]
138. Das, S. A Systematic Study of Integrated Marketing Communication and Content Management System for Millennial Consumers. In *Innovations in Digital Branding and Content Marketing*; IGI Global: Hershey, PA, USA, 2022; pp. 91–112.
139. Mondal, S. A Systematic Study of New Age Consumer Engagement and Exploration for Digital Entertainment for Over-the-Top Platforms in Various Digital Media. In *Innovations in Digital Branding and Content Marketing*; IGI Global: Hershey, PA, USA, 2022; pp. 113–133.
140. Das, S. *Innovations in Digital Banking Service Brand Equity and Millennial Consumerism. Digital Transformation and Innovative Services for Business and Learning*; IGI Global: Hershey, PA, USA, 2020; pp. 62–79.
141. Mondal, S.R. A Systematic Study for Digital Innovation in Management Education: An Integrated Approach Towards Problem-Based Learning in Vietnam. In *Digital Innovations for Customer Engagement, Management, and Organizational Improvement*; IGI Global: Hershey, PA, USA, 2022; pp. 104–120.
142. Cenamor, J.; Parida, V.; Wincent, J. How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *J. Bus. Res.* **2019**, *100*, 196–206. [CrossRef]
143. Li, L.; Su, F.; Zhang, W.; Mao, J.Y. Digital transformation by SME entrepreneurs: A capability perspective. *Inf. Sys. J.* **2017**, *28*, 1129–1157. [CrossRef]
144. Wong, L.W.; Leong, L.Y.; Hew, J.J.; Tan, G.W.H.; Ooi, K.B. Time to seize the digital evolution: Adoption of blockchain in operations and supply chain management among Malaysian SMEs. *Int. J. Inform. Manag.* **2020**, *52*, 101997. [CrossRef]