Comprehensive Survey for Designing and Implementing Web-based Tourist Resorts and Places Management Systems

Abdulmajeed Adil Yazdeen [1], Subhi R. M. Zeebaree [2]

[1] ITM Dept., Technical College of Administration, Duhok Polytechnic University, Duhok, Iraq
[2] Energy Eng. Dept., Technical College of Engineering, Duhok Polytechnic University, Duhok, Iraq

---

ABSTRACT

Recently, development an efficient Tourism Management System (TMS), become an important issue in tourism toward industry. Internet act one of most common role in popularity information and data to the tourists by uploaded this information include the tourism places, distance view between these places using GPS system through internet. Tourism Management System can be understanding as a complete tourist fully integrated tourism web site. Such website or web application covers all the areas required, in order to display and view wide range of information for one place, to rapid serve connection between managers of place with tourism. It is the process of defining the purpose, vision, and goals of an organization, formulating policies and plans, and then allocating resources to execute the policies and plans, projects, and programs developed to meet those objectives. The major goal of these projects is for better giving a confederacy in managing, logging and logout, complaints and reports. Through the cultural consumption of visitors, tourism types have played a significant influence in the development of regional and local economies. An intangible purpose to build and promote cities and nations through promotion is addressed by a creative tourist system from a new paradigm. Economic, social, political, and cultural factors have all increased their regard for originality and inventiveness as a result of this development. The study attempts to clarifies and displayed various types of systems used by various tourism authorities had a positive possible effect on their operations by making tasks easier for their employees. Furthermore, the study discusses the main differences of these studies by comparing between some of these studies in order to gain the base benefices when new researcher want to make new TMS.

KEYWORDS: Tourism, Tourism Management System, Website Management, optimization Tourism management, Management model.

---

1. Tourism Management System

It's a website for the travel and tourism industry. The purpose of the website is to improve the user-to-tourism business connection. System that benefits both parties. This website is simple to use for both the user and the tourist operator. There is no limit to what the Travel & Tourism management system can handle. Helping tour operators manage guests, hotels, and other aspects of their business is the primary goal. [1]

The travel and tourism business is a major driver of economic growth all over the globe. Only gasoline and chemical goods and agriculture and automotive sectors come before tourism in terms of exports. In many developing nations, this industry generates the most money in terms of foreign cash. [2]

Previously controlled by conventional media and information gatekeepers like guidebooks, specialist magazines, and travel agencies, the internet has totally redesigned communication networks in the tourist industry [3].

It is possible to transform the enormous and unstructured information on tourist areas into systematic and logical information by using a knowledge management system. In this system, information will be shared and used to improve tourism regions' information transmission efficiency, reduce data maintenance costs, enhance tourism regions' information storage methods, and provide a new mode of training tourism enterprises' employees, improving the professional skills of tourism practitioners and effectively promoting tourists' experiences in tourism regions [4].

To be competitive in the tourist industry, firms must have websites that are well-designed and well-

targeted at attracting clients [5].

Rapid advancement of information and communication technology (ICT) has a crucial impact on tourist sector enterprises' competitiveness, as a consequence of which its assistance to the industry has reached a more essential position. When it comes to advertising, informational campaigns, strategic planning, and research, tourism organizations in tourist-heavy nations have an advantage over their counterparts in less tourist-heavy countries [6]. In 2020, the COVID-19 pandemic was the biggest threat to world economic growth. One of the many areas it has affected is healthcare, but it has also had an effect on economic development, corporate business models, and the global tourist industry [7]. SMI in general, and how it has affected the tourist industry in particular, is examined. In the past, academics and researchers were particularly interested in the amount of data created each day by social media (Facebook, Twitter, Instagram, Sina-Weibo, blogs, news, etc.). The essential pillars of social media analytics are data from social media, users or people, industry, and technology [8]. To quantify tourist engagement on DMO social media, [9] provides a new social media index; they concluded that social media indices may be utilized to evaluate and monitor the effectiveness of DMO social media in tourism engagement.

2. Background Theory

There are new breakthroughs in technology that promise to make travel more entertaining and engaging. Today, no one denies that technology and travel are an ideal match. We travel in a variety of ways, from choosing a holiday spot to what we do while we're there, and even after we've returned from our journey. [10] When it comes to places' economic and social growth, tourism is becoming more crucial. For academics who study the economic effects of tourism, it is crucial to evaluate how tourism contributes to economic development in order to help develop tourist policies and strategies [11].

2.1 Tourism

In certain nations, tourism is viewed as a catalyst for economic development. When individuals leave their normal surroundings for personal or professional reasons, they are referred to be tourists. This is a social, cultural, and economic phenomena. When these visitors (residents or non-residents alike) engage in activities that include tourism expenditures, they are referred to as tourists (tourists or excursionists) [12].

A TIS system may be built using the above-mentioned information. You may easily adapt this system to suit your needs in any location. A variety of information may be found in these metadata pieces from a variety of sources.

In order to get tourist demand information is via a variety of means, such as websites, tourism communities, government information centers, friends, tourism literature, and travel agents, all of which are illustrated in the Flow Chart Tourist Information System below. There are a variety of travel websites to choose from on the Internet. There are a variety of social media platforms dedicated to the travel industry, including Facebook, WhatsApp, Twitter, and Instagram. The Department of Tourism, Forestry, Fisheries, and Public Works are all included in the Government Information Center. When a visitor's friend or family member has been to the tourist destination and can share his or her insights, that person is considered a "friend." The writing devoted to promoting a destination as a tourist destination is known as tourism literature. Those who work in the tourism industry are known as travel agents, and they give services to visitors [13].
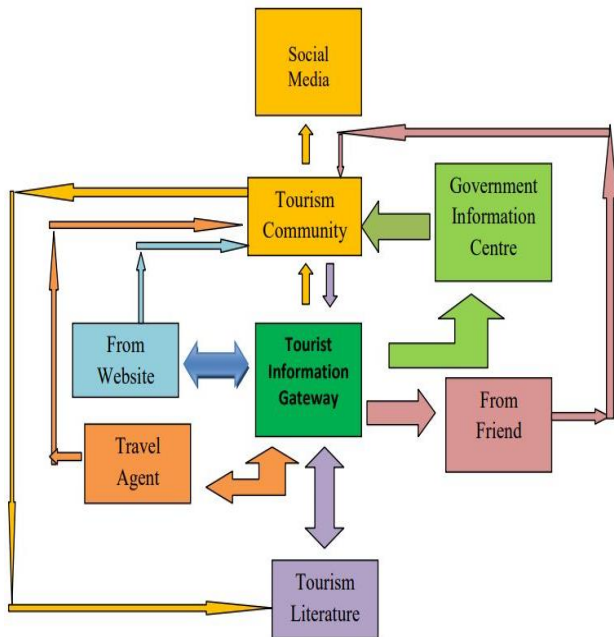
Fig1. Tourist Information System [13]

Tourism product' covers a number of different categories including: [14]

- There is a wide range of lodging options available to visitors including hotels and bed & breakfasts, guesthouses and self-catering flats.

- Services that provide food and drink to guests such as pubs, restaurants, and cafés, as well as private dining rooms for parties or conferences, are examples of hospitality.

- Travel agencies, tour operators, and other reservation services, including DMCs (see travel trade section).

- This category includes everything from trains and roads to waterways and airways.

- Museums and other tourist sites are examples of cultural services.

- Sports and other forms of leisure.

- Tourist guides and guided tours.

- Retail.

2.2 Tourism Management Information System Overview.

A tourist management information system based on the collection, processing, and tourism-related activities and information-based business system. Using this data to assist travelers and tourism professionals make better judgments or run their businesses is the goal of this system. It is characterized by three qualities: reliability, punctuality, and flexibility [15].

i. integrity. When it comes to managing tourism, an information system is an amalgamation of data from a wide range of sources. As tourism grows, so does the need for a more comprehensive management information system, which now encompasses six distinct but interconnected components: food, lodging, transit, travel, retail, and entertainment.

ii. Relevance is the second factor to consider. There should be a set of rules for joining these pieces in an orderly fashion, with each component in close proximity to the others so that mutual checks and balances may be performed. In tourist management information systems, changes in information may have a significant impact on other areas of the system, such as management systems, decision-making, and advising functions.

iii. Dynamic. Is there a link between the dynamic status and the time? Due to the fact that tourism is always evolving and changing, it necessitates a system of tourism management information that has dynamic transmission capabilities.

2.3 System Architecture

Define a design by viewing architecture architect part of the system design process. It is essential that you have a thorough grasp of the application history, functional requirements, performance requirements, and real application environment before you begin developing the system architecture. Consider all considerations while designing a computer's architecture, since it may affect how well it performs to a degree [16].

2.3.1 Implement System Design

The smart tourist management system's logical architecture consists of four layers: the module layer, the foundation layer, the functional layer, and the cloud service layer. For these four components to work together in harmony, they must be developed and designed as a system in order to accomplish certain management activities. Each level of the smart rural system works in concert with the others to accomplish certain tasks. Figure 2 depicts the precise structural structure of the product.
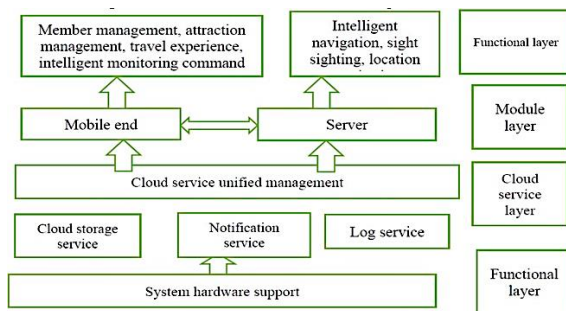

Fig.2 Overall System Architecture

Enterprises are still relying on the old construction method, which is the development and development of each system module and the integration of various demand services into the system development, which means that if the function expansion is carried out later, even with the same features in place, it is necessary to rebuilding the developed system. At this point, cloud computing's development is growing more and more refined, which reduces costs and improves the system's reliability [17.18].

2.3.2 GIS Architecture

Based on geographical data and a 3D landscape map of tourist destinations, the system provides route planning and virtual roaming, allowing users to experience the scene and know the route and scenic spot information before they arrive at the destination. Location-based service technology and augmented reality technology integrate the virtual environment, graphics, and text labels deeply into the real environment that tourists see, giving them a new perspective on cognition and bringing an interactive

application experience that traditional software cannot provide. Figure 3 depicts the system's architecture [19].
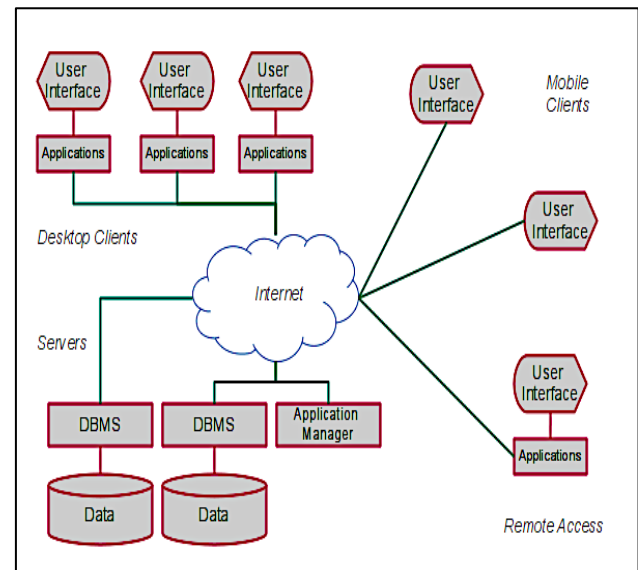

Fig3. GIS Architecture

2.3.3 Web-based Information Systems in Tourism

The development of web-based information systems for tourism has accelerated rapidly as a result of the advancement of Internet technology. The importance of tourism recommender systems (TRSs) cannot be overstated, since these systems are designed to provide visitors with information that is tailored to their specific interests and needs. TRSs are mostly concerned with tour packages, tourist attractions, travel planning, and socializing [20].

2.4 Web-based TSA information system

Innovative Web-based TSA information system that can provide critical TSA tables frequently and in a timely way is introduced here. TSA compilation process chain includes all of the important elements, including data collecting, data storage and management, statistical analysis, and other extended applications. As a result of this information system, tourist sites and areas that rely heavily on tourism will be able to compile and apply TSAs with more efficiency.
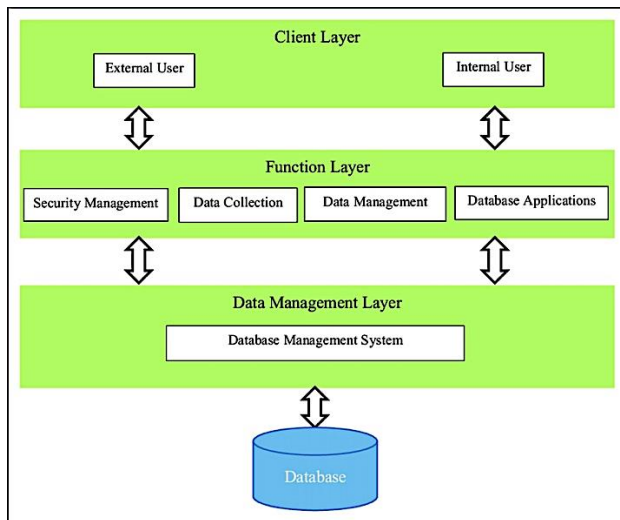
Fig4. Design architecture of the Web-based TSA Information System. TSA: Tourism Satellite Account.

Figure 4 depicts the system's design architecture. The client layer is the first one. Internet browsers may be used by authorized customers to access the system from their own computers. External and internal clients may be distinguished. The findings of the TSA and subsequent applications may be seen by approved government and industry practitioners, known as "external users." The system administrator and TSA experts are examples of internal users. As the system administrator, you are responsible for creating and maintaining all accounts and users. TSA compilation and expanded applications are handled by the professionals. The system's most important part is its function layer. Security management, data collecting, data administration, and database applications are all included in this scope of work. When it comes to managing security in a computer network or network, the system's security management is critical. To create the TSA tables and apply the results of the TSA to various extended functions, the components of data collecting, data administration, and database application are used. In the database management layer, two databases are used to store information. First, the TSA tables and enhanced applications are stored in a separate database. Compiling the TSA tables and performing further analytics are done in a second database [21].

2.5 Functions of the Web-based TSA information System

Web-based TSA information system capabilities include data collecting, data administration, TSA compilation, statistical analysis, and expanded applications, as seen in Figure 5.

Gathering and management modules for data collection and management. It is one of the system's primary goals to decrease both the time and money spent on collecting data. Figure 5 illustrates how data is gathered from a variety of sources. The system is capable of supporting both online and offline surveys. Online surveys take less time than traditional paper surveys. There are fewer entry mistakes in online surveys since the data is sent straight from survey devices to servers. It is possible for governments to upload national accounts and other tourism-related data to the system through the Internet. The data management server stores all of the data, which is then published via the Web servers. The system has two Web servers. The primary server is utilized for daily operations, while the secondary serves as a failover. In contrast to web servers, the data management server runs on its own. The servers are all connected by a storage array network, which is protected by a firewall. Any outliers or other anomalies are found once the data has been submitted and reviewed for quality [22].
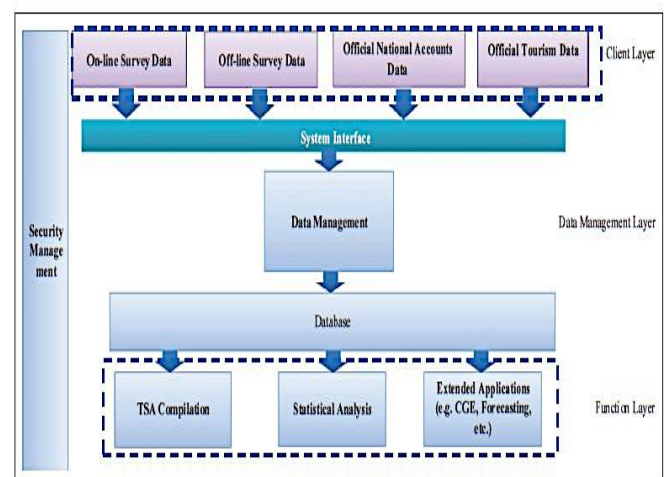

Fig 5. Functions of the Web-based TSA Information system. TSA: Tourism Satellite Account.

2.6 Methodology

In this review we demonstrate some of articles and paper that concerned to Tourism Management System (TMS). The selection of the depended previous works was according many factors that related to build or investigate new model of TMS. By gathering these factors new vision of grouping papers inside our review was declared. We discovered that there are published studies related directly to the topic of website assessment in the tourist area. Over than 21 peer-reviewed papers were found to be related to this research. We mentioned and classified these papers into literature review and in table 1 explain deep focusing of the term of paper where study or analysis is or building new model. The table also shows the yearly number of particles produced in each category. In discussion section we compared four papers in term of aim of study and topic of study to whom it related and presented. Besides, that the table also view the location and district that study is made.

3. Literature review

Ruiz Palacios, M. A., et al. in 2021, proposed a new diagnostic model which deals with determining the locations related to summer tourism sector. For that purpose, they studied a number of hypotheses regarding the tourism industry. They developed a new diagnostic model for the tourist industry based on their new prediction model. The second-largest and oldest district in Metropolitan Lima, Peru's Ancon is a seaside town. Tourist attractions and local resources, including Lomas de Ancón, a 10,962 acre conservation area, were examined in the research. Because it is based on phenomenology and a grounded theory, it used a qualitative methodology. It was feasible to see the Lomas de Ancón's natural flora and animals in both its winter season (2018 and 2019) and summer season (2019) throughout the

study period of May 2018 to March 2019. (dry season). According to the findings of the research, the new model of analysis enables us to recognize and comprehend the dynamism and potential of sun and beach tourist locations that are now growing. In the Ancón area, there are resources and attractions that might be used to create and market new tourist goods. [23]

Like any other sector, tourism is now acknowledged as a worldwide business that is expanding at a rapid pace. The database may be better maintained with the aid of this web-based application. It features a welcoming atmosphere that encourages consumers to engage with one another. As a result, the procedure is made easier by saving us time and effort. In order to successfully and efficiently manage all of the tour-related activities, it will be helpful to tour managers. In order to assist larger businesses like travel agencies, it is likely that the system might be further modified to interface with them. [24]

When it comes to forecasting tourist demand, there is an inherent level of uncertainty that must be taken into account. Unforeseen occurrences linked to the present global health crisis continue to have a significant impact on tourist demand, leading to an investigation into strategies to forecast the destructive impacts on tourism of the COVID-19 pandemic. Forecasting tourist arrivals is critical to the tourism sector because it provides an early indication of future demand. As a result, it gives essential data that can be used to plan and establish future initiatives. Seasonal visitor flow estimates may assist decision-makers improve their strategic planning efficiency and lower the risk of poor decision-making. They used the ARMA model approach to examine the development of monthly arrival series for Romania between January 2010 and September 2021 in order to determine the best statistical forecasting model for arrivals. During the course of this study, they

examined two models for projecting tourist demand: AR(1)MA(1) and the AR(1)MA(1) (2). The findings of their research suggest that AR(1)MA is the most accurate model for predicting visitor demand (1). [25] The purpose of this paper is to offer a new ICT infrastructure that is tailored to the needs of the tourist industry. In order to provide a digital infrastructure to 10 towns in the Marche region (Italy), "La Valle del Pensare lungo il corso del Potenza" has been developed, which is a case study. Development of an essential communication system that supports tourism routes of mining sites and specialized themes throughout the region, promoting cultural heritage, green landscapes and fascinating locations is the goal of this research project. [26]

Design and development of a recommendation system for the smart tourist business using agent and web technologies is the goal of this work. The online contact with other sectors of the tourist industry, such as the tourism supply chain, agencies, and so on, is taken into consideration while designing a hybrid recommendation system based on agent technology. However, the contract net protocol is used to build and establish online communication across sectors through agents. In addition, the design system was created using the Java Agent Development Framework and then deployed online. It has been shown that the suggested web application enhances the referral rate for consumers in two situations involving 100 customers. A 20% improvement in this rate was achieved in the first scenario without disturbances, while a 30% improvement was achieved in the second scenario that included disturbances. On the second situation in which real-time data communication happened, the suggested system enabled real-time data transmission as well, making it a viable option. [27]

The study's goal is to determine the impact of hotel website management on the hotel supply chain and the performance of the Malaysian tourist sector. The public's interest in online communication and Internet marketing for tourism has grown in the last decade. More and more people are using the internet, proving that it has developed faster than any previous technological invention or form of communication. As a result, it's becoming a popular way for hotels to keep in touch with their guests. A poll of hotel personnel and visitors was used to gather data for this research. Analysis of hotel supply chain shows that hotel website management has a significant impact on the travel sector. There are several factors that contribute to the hotel supply chain that may be found on websites. Furthermore, the quality of the staff's service cannot be overlooked. In this way, the hotel website's beneficial impact on its supply chain is bolstered. [28]

An unique technique for managing local systems in the tourist and leisure sector is the focus of this research. Its theoretical rationale and practical suggestions will be presented. Russia's Volga Federal District serves as a case study in the research of local tourist system management described in the article. Researchers in the Volga Federal District examined theoretical approaches to the administration of local tourism and leisure systems and came up with a new method for doing so. The findings of the research demonstrated that the present state of the Russian economy and the growing importance of integration processes in creative interaction at regional and interregional levels mandate the relevance of the establishment of an innovative local system in Russia. As a result of this, new methods and instruments of effect on present economic processes in tourism should be studied and implemented [29].

If an online tourist firm wants to be unique in its field, it must focus on increasing client happiness. Customers are more likely to return and spend more money if the website they visit is more interactive,

which may both bring in new visitors and keep them coming back. It is hypothesized that the interactivity of an online tourist website affects client satisfaction in this research. Surveys are carried out by the authors using an internet questionnaire. Customers' perceptions and emotions are influenced favorably by an online tourist website's reactivity, which in turn increases their pleasure and, maybe, their loyalty. But neither bidirectionality nor controllability have a substantial impact on consumers' emotional or perceptual experiences. [30]

These studies attempt to establish and evaluate a scale to assess hotel website service, called HWebSQ, in order to quantify hotel website service quality in this market. Predictive power is established by comparing the new scale with an anticipated result, such as client purchase intent. There is a thorough scale development process used in the study, including domain design, item production, scale refinement, purification, and validation (all at scale). Tourists who stayed in Vietnam's 4- to 5-star hotels provided the data. Results show that the 34 items across 7 dimensions of HWebSQ are valid and reliable indicators of hotel website service quality. Some examples of these include the usability, responsiveness, usability, information quality, interaction, and security of a website. Customer purchasing intent is positively linked to each of these factors. HWebSQ is a new scale that might be useful for hoteliers and other service providers that are interested in creating customer-retention-focused websites. [31]

E-loyalty is defined as a visitor's willingness to return to a website he or she previously visited. LISREL software was used to analyze a sample of 384 visitors to a destination website. E-loyalty to a destination website is influenced by a wide range of criteria, including E-trust and E-commitment, as well as E-satisfaction. In addition, the following conclusions

were uncovered by this investigation: E-trust, E contentment, and E-loyalty are all influenced by the E-servicescape. Customers' pleasure and dedication are directly linked to their faith in the company. For this reason, customer satisfaction with an Iranian destination website has a direct impact on customer commitment and loyalty. [32]

Research in this area is aimed at developing an online system for distributing event venues in DKI Jakarta. Observation, interviews, and literature studies are the methods utilized to get this information. Rapid Application Development (RAD) and the Unified Modeling Language (UML), which is a tool for system description and design, are used in the system development technique. Google Maps API is used for digital maps. Statistics from the DKI Jakarta Tourism and Creative Economy Department's event data and event categories were used to create an interactive map showing the spread of events throughout DKI Jakarta. This strategy relies on PHP and MySQL, as well as RAD and the Unified Modeling Language (UML), which are both modeling languages used to express complex systems. It also makes use of the Google Maps API to integrate digital maps into the final product. Based on event data and event categories collected by the DKI Jakarta Tourism and Creative Economy Department, this project has produced a spatial information system that can be used to show a map of event sites in DKI Jakarta. Instead of using PHP and MySQL, the RAD approach employs the Unified Modeling Language (UML), a tool for describing and creating systems, together with the Google Maps API for digital maps, as part of its system development process. Based on data and classifications from the DKI Jakarta Tourism and Creative Economy Department, a map of event sites in DKI Jakarta may be generated from the findings of this research. [33]

Researchers in sub-Saharan Africa have developed a

model for the management and development of tourist resources. The suggested geodatabase serves as a repository for dynamic and interactive web maps based on tourism data. All tourism-related data is collected and processed in this geodatabase, which is subsequently made available to travelers through maps created using cloud computing methods. After completing six queries, the well-designed WebGIS could be browsed and the online maps it included were interactive. Their findings show that the WebGIS model they developed is capable of effectively managing, promoting, and sustaining the tourist business. For nations in sub-Saharan Africa, this research developed a model based on geographical data for managing and promoting tourist resource resources. The suggested geodatabase serves as a repository for dynamic and interactive web maps based on tourism data. All tourism-related data is collected and processed in this geodatabase, which is subsequently made available to travelers through maps created using cloud computing methods. After completing six queries, the well-designed WebGIS could be browsed and the online maps it included were interactive. Their findings show that the WebGIS model they developed is capable of effectively managing, promoting, and sustaining the tourist business. [34] GPWI in Bukittinggi has been successfully established in this study project using online and mobile platforms.

They developed a database and algorithms using spatial operations to meet Muslim visitors' demands. The GPWI was developed using the waterfall process. In order to better understand halal tourism regulations and the needs of Muslim visitors, a literature study was conducted. A use case diagram was used to identify the demands of Muslim visitors. According to this study, GPS data was used to gather information on mosques, restaurants, souvenirs,

small businesses, and public transportation routes, all of which were seen in person. After that, the GPWI's design was finalized and put into action. Programming languages like PHP, JavaScript, and Basic4Android were utilized to create this app. The database was created using PostgreSQL/PostGIS and the base map was created with Google Maps. In the last step of testing, the GPWI was subjected to black-box testing. Overall, Muslim travelers' demands were addressed, particularly with regard to mosques being more easily accessible. The development of a GIS for halal food and a GIS for Bukittinggi, Indonesia, travel sites is recommended as an area of future study. [35] Garut Regency Tourism Office observes, it's clear that this is the case. The Garut district region's religious tourist attractions are a popular destination for the local community's members. The bar is set rather high. Sacred tombs are the most common sort of tourist attraction. Almost all of them Graves in the Garut area may be visited for religious purposes. But the arrival of fresh visitors Tourists can only visit a few places. Tourists from outside Garut regency are the primary source of visitors. It may be found in all of Java's provinces. Potential investors have a limited amount of knowledge about The influx of visitors and the spread of misinformation by those with links to the industry are two potential culprits. The amount of visitors interested in the particular reason for their visit, as well as the dissemination of that interest, should be kept to a minimum visiting. The Garut regency government may implement an alternate approach in the form of especially by developing a GIS mapping web-based religious institutions a tourist attraction.

The project intends to develop a GIS mapping web-based religious tourism objects that offers regional mapping that explains the status of infrastructure and public services accessible on these attractions. The Rational Unified Process, an object-oriented design

process, is used to create the system. It has four stages: conception, development, construction, and transition. Because of this, it is projected that the use of this system would lead to an increase in the number of visitors and the dispersion of travelers to tourist attractions. [36]

Andalusia's rural hotels are distinguished by their independence from hotel chains, their modest size, and their low star ratings. This article examined the publishing of quality certificates, badges of excellence, and online reputation on their website. The most important findings reveal a dearth of quality indicators on hotel websites, which is where most internet reviews can be located. There were just 38 percent of the assessed hotels that have any kind of quality indicator. Some 23.68 percent supplied information about their web reputation, while 20.3 percent exhibited some kind of mark of excellence, and just 7.5% indicated that they held quality certificates. [37]

The study's main goal is to see whether institutional variables have any impact on the Geographic information system (GIS) application and the GGY association (AGMS), Planning for Malaysian tourism includes both an IMS and a TP. Here's why: 367 geography and tourist management professionals provided us with impartial, first-hand information. Employing a suitable sample strategy that indicates a 75.4% response rate by authorities. The Using the PLS-SEM approach, they discovered. It is clear that the TP had a favorable and substantial association with GGY, IMS and GIS. It was also shown that IF exerted substantial and favorable moderating effects through the indirect impact. GGY, IMS, AGMS, and TP are all members of an association that exerts influence. According to the results of these studies. Because this link has a strong moderating variable, they may conclude that [38] The insertion of the study.

As demand for tourists rose, the issue of tourism became a popular one. Travel websites in the past often offered a broad overview or price list of hotels, transportation tickets, etc. Travelers are no longer satisfied with this kind of information. Travel websites have the problem of presenting visitors with unique and imaginative vacation ideas. This article describes a novel system that uses software reuse and abstraction approaches to create unique trip itineraries. Three parts make up this system (Information Abstraction, Information Reuse, Information Formulation). To begin, the system will use a high degree of abstraction to break down the characteristic question into individual journey components. A creative travel plan may be put together by repurposing various aspects from various parts of the journey. Finally, the system creates a set of creative measures for ranking the resulting plans. [39]

Altai-Sayan region's tourism growth is discussed in this research. The existing situation of tourism is compared to the sustainable development of tourism for this goal. There are five phases of sustainable tourism development in Altai and Sayan mountains that may be outlined as a result of this. Ecology and ethnicity are at the heart of ethnoecological tourism, which adheres most closely to sustainable development principles and has the most potential in the mountainous area under consideration. Environmental management may benefit greatly from the use of functional zoning.

As a foundation for tourism service spatial design, the landscape-adaptive concept has been suggested. In order to better understand the mountain region's tourism infrastructure, they looked at its geographic components. This allowed us to see how the mountain-valley relief and linear structure were intertwined. There are other instances of dispersion, focused, linear-perpendicular, and radiation-

dispersion structures in tourism networks. Various regions' top tourism development goals might therefore be highlighted. It was suggested that the Altai-Sayan area be functionally zoned in order to identify development priorities. As a result, tourist hotspots and ecotourism hotspots might be identified in relation to each other. In addition, tourist routes predominate in areas with low economic development, while local tourist hubs do so in areas with moderate economic growth. [40]

Designing and implementing an intelligent platform to assist travelers in finding accurate and relevant information on tourist destinations including locations, restaurants, and activities is the goal of this project. Unified Modeling Language (UML), Microsoft Access 2010 and Visual Studio were used to develop and implement the suggested work. Saudi Arabia's planned tourism system would be able to give travellers with accurate and relevant information about Kingdom of Saudi Arabia's tourism destinations and suggest locations to visit depending on the interests of tourists. [41]

According to this research, the Danube area consists of a number of distinct clusters of destinations, and these clusters are protected by national borders. Using network analysis and efficient clustering techniques on massive geotagged datasets from user-generated content, a new approach is offered The Danube river's linear structure was mapped using data from the Flickr photo-sharing site. Modularity analysis showed 18 regional clusters that were linked together into three powerful, but distinct, destination systems. Cities' essential role in integrating the larger system, as well as the boundary-shielding impact that prevents the system as a whole from being fully integrated, were quantified.[42]

The importance of tourism in emerging economies is highlighted in this study. According to their findings, a 1% increase in tourism boosts GPD by 0.051 percent, foreign direct investment by 2.647 percent, energy development by 0.134 percent, and agriculture development by 0.26 percent, and reduces poverty by 0.51 percent over time.

As a result, policymakers should be educated that tourism can enhance development in underdeveloped economies through public interventions such as policy formulation and implementation. Furthermore, consistency and coherence in policy are critical for competitiveness, sustainability, and maximizing tourism advantages.[43]

Table 1. Summary of literature review related to the Tourism Web-Based Systems

Ref.	Authors - Year	Research category	Algorithm and Analyzing Tools	Application and service output	Study target region	Object tool	Obtained Results
23	Ruiz Palacios, M. A., et al. (2021).	Analyzing tourism system study	Molina explanatory theories	Analyzing system for decision making, helped local managers offer experiential tourism activities	Ancón district, located in the province of Lima,Pero	Develop model for analyzing local tourism activity diagnosis of the some elements: resources, facilities, infrastructure, tourism demand community role	System provide vision for develop new tourist products and diversify the local tourist offer
24	Sureshan, S. (July 19, 2021).	Developing tourism system	Amazon RDS	Construct a system that handles all aspect of travel, from making a reservation to going on a tour.	worldwide system	The database can be better maintained by using a web-based application.	Creating a cloud-based solution for backup and security
25	Turtureanu, A.-G., et al. (2022).	Analyzing as predicating model	ARMA model	For future planning and development of tourist control policies, this data is essential.	Romania	Determine the most accurate way to predict the number of visitors.	AR(1)MA(1) is a superior model for predicting tourist demand than AR(1)MA(1)
26	Pierdicca, R., et al. (2019).	Centralized content analysis system	ICT channel for La valle del pensare	Website, smartphone app, touch screen interactive totem and regular tourist signs are part of a multi-channel tourism information system	Italy	Present cutting-edge ICT infrastructure created exclusively for the tourist industry. For marketing and tourism industry analyses as well as website content optimization and future consumer wants and advancements	Resources and activities may be linked via a network in order to promote historical landmarks, cultural landmarks, parks and other fascinating spots.
27	Hassannia, R., et al. (2019).	Proposed web based application	content-based approach and a proposed hybrid approach	Web based application that used real time application	Customer from different nationality	real-time data transmission and appropriate filtering mechanisms.	scenario 2 fared better than the traditional system in both findings (R = 13.41 and P = 3.43)
28	Roeshartono Roespinoedji, et al (2019)	Survey and analyzing the data	PLS-SEM	website management	Malaysia	Management of hotels in order to make tourism more appealing	Accessibility and hotel supply chain management have a stronger connection when the quality of the employees is high.
29	Chkalova, O., et al. (2019).	CASE STUDY	Conceptual approaches to innovative management	Predicated system	Volga Federal Russia	local tourism systems	That the present economic environment in Russia and the ever-increasing significance of integration processes in regional and interregional innovative interaction strongly influence the relevance of the innovative local system development.
30	Yuexin Luo, H. L.,et al (2019).	Valid data collected are analyzing	using the social statistics software SPSS24.0, and structural equation modeling software LISREL8.70	Tourism website interaction can attract and retain customers	Chinese	Internet interaction effect Tourist site to satisfy customers	Indicate that responsiveness of online tourist websites significantly impacts consumers' perceptual and emotional experiences, which further positively improves their satisfaction, which may lead to customer loyalty. The emotional and perceptual experiences of clients are not considerably improved by either directionality or controllability.
31	Le, V. H., et al. (2020).	data collection from Tourists and their analysis	The development and validation of the HWebSQ scale	Detailed scale development process: Domain determination, element generation, scope purification, purification and validation	hotels in Vietnam	develop and validate a scale to measure website service quality in the hotel industry, namely HWebSQ	Increasing consumer satisfaction and likelihood of repeat purchases may be achieved via the use of an online tourist website's interactivity.

32	Najmeh Gharibi*,et al (2020)	Website analysis	using LISREL software	a new contribution to the online context of destination websites, and it presents a better identification of the process of forming E-loyalty between online users and touristic websites.	Tourists visit iran	The purpose of this study is to measure the role of factors affecting E-loyalty of visitors to a Tourism Website in Iran	Except for E-trust and E-commitment, all factors, such as E-satisfaction, have an impact on E-loyalty to a destination website, according to the findings. This research also found the following things: Customer trust, contentment, and loyalty are influenced by the e-services cape. Customers' pleasure and dedication are directly linked to their faith in the brand. An Iranian destination website's E-satisfaction rating is directly linked to visitors' levels of E-commitment and E-loyalty.
33	Muhammad Syaifullah Mahfudz,et al (2020)	Case Study The collection of this data is Method of observation, interviews and literary studies.	DKI Jakarta	the registration and publication flow of the DKI Jakarta Provincial Tourism and Creative Economy Office shows several problems that can be identified	worldwide	produce a Web-based spatial information system for distributing Tourism industry events to map event locations in DKI Jakarta	Based on data and classifications from the DKI Jakarta Tourism and Creative Economy Department, a map of event sites in DKI Jakarta may be generated using this study's findings.
34	Mango, J., et al. (2020).	designed a spatially Web GIS model	Uses programming language, HTML, CSS, and JavaScrip	Design a web-based geographic information system (GIS) model for the management and promotion of tourism resources for sub-Saharan African countries	sub-Saharan Africa	The manager of tourism agency for resources and successful sustainable tourism industry	Create more abstract web maps inside a web-based GIS.
35	Afnarius, S., et al. (2020).	Case Study. Data related to mosques, attractions, restaurants and hotels	A web- and mobile-based GPWI	developed A web- and mobile-based GPWI in for Bukittinggi	Bukittinggi, Indonesia	to make it easier for Muslim tourists to find mosques, and other tourism objects and facilities.	According to the findings, the GPWI was able to meet the demands of Muslim travelers, particularly in terms of making it simpler for them to locate mosques.
36	A D Supriatna*,et ai (2021)	designing a geographic information system mapping web-based	RUP is a software engineering process with defining well	A system for determining the religious area of Garut for tourist visitors	Garut district	GIS mapping of web-based religious tourist sites should include regional mapping that explains the infrastructure and public services accessible at these attractions. It goes through numerous phases, such as conception, development, building, and transition, before reaching its final form. It is reasonable to predict that the implementation of this system would lead to an increase in the number and distribution of visitors visiting tourist places.	As a way to promote tourist services in the Garut regency government to expand religious tourism destinations, a designed geographic information system may be deployed. The results of this study may be utilized as a guide for local governments interested in attracting more visitors to religious tourist attractions by showing how system development affects such efforts.

37	Rabadán-Martín, I., et al. (2019).	analyse the quality indicators that rural Andalusian hotels	used the SICTED certification	Reviewed the publication of quality certifications, logos of excellence and online reputa-tion on Andalusia rural hotels web page, characterized for being independent from hotel chains, small size and low stars	rural tourism in Andalusia	On rural Andalusian hotels' official websites, look at the quality indicators they display, as well as the various elements that might affect what kind of indicators they display.	Only 38 percent of the hotels analyzed had some form of quality indicator, according to the findings. Of the establishments, 23.68 percent supplied information about their internet reputation, 20.3 percent exhibited some type of excellence logo, and just 7.5 percent decided to declare that they held quality certificates in this respect,
38	Saba Alnusairat1, et al (2021)	Data collection and analysis to geographical perspective from Malaysia	PLS algorithm	These findings had shown that IMS is better the TP	Malaysia	See how institutional considerations affect the Malaysian Geographical Association (GGY), the use of the Geographical Information System (AGMS), the information management system (IMS), and the design of tourist attractions in the country.	IMS and TP are examined as a pair in this study. The more efficient the TP is, the better the IMS. As a consequence of the study's findings, the tourist industry has grown as a result of better implementation of IMS. Research also demonstrates that IF moderates GGY, IMS, AGMS, and TP to a large degree when it comes to their effects.
39	Ma, S., et al. (2017).	metrics system	Information Abstraction, Information Reuse, Information Formulation	Web based application. demonstrates the Creative Travel Agency (CTA) that it generates creative travel plans	Global system	Prepare a system for creative travel plan to new tourism	Demonstrates a new trip planning system that aims to produce novel vacation ideas. There are three parts to this system: information extraction, reuse, and formulation. As a starting point, the system should abstractly break down the characteristic question into several modes of transportation. This approach is based on recycling elements from several modes of transportation in order to create a unique trip itinerary. Finally, the system creates a set of creative measures for ranking the resulting plans.
40	Dunets, A. N., et al. (2019).	Strategy of selection property	functional zoning	Web based application	Altai-Sayan region	For the economy's tourist sector, These findings are intended to help guide future tourism growth by determining which places may be considered stable given the large concentration of tourist infrastructure and, conversely, which locations provide potential for natural tourism.	The development of border regions as integrated tourism destinations has a positive impact on cultural, social, and economic interactions.
41	Hala Almaimoni, N. A., et al (2018)	Developing accurate system	UML and Visual Studio	design and implement an intelligent platform for tourisms	Kingdom of Saudi Arabia	religious tourism	The Kingdom of Saudi Arabia's tourism system was able to give travelers with accurate and relevant information about the Kingdom's tourist attractions and propose locations to visit depending on the interests of the tourists.

42	Kádár, B. and M. Gede (2021).	Flickr data was used to map	methodology based on network analysis with algorithms	18 regional clusters integrated into 3 strong, but separated destination systems were identified by modularity analysis.	Danube ,Romania Region	There are distinct tourism hotspots along the Danube, and this research reveals how national borders act as an effective barrier to cross-border travel.	In order to determine the Danube's structural integrity as a large-scale tourist destination system, Flickr datasets are being converted to weighted graphs of connection. An imbalance in the Danube's tourist entrance sites was discovered in the first part of this study: Vienna and Budapest are huge capital cities with international airports, whereas Novi Sad, Linz, Regensburg, and Ulm are larger cities with adequate transit links. There are no such riverside starting points for visitors in the Lower Danube area. Bucharest, the capital of Romania, is only 60 kilometers from the Danube Delta and other Lower Danube sites, making it a popular gateway for tourists. Since there are no other transit hubs within a reasonable distance of Bucharest, it was included to the spatial system.
43	Khan, A., et al. (2020).	Data Collection	(ARDL) model	Assesses the role of tourism in shaping the fundamental pillars of development in developing economies by targeting the case of Pakistan.	Pakistan	The critical significance that travel and tourism play in the growth of developing nations.	There was a considerable rise in GPD, foreign direct investment, energy development, agricultural development, and poverty reduction in the long term as the percentage of tourists increased from 1 percent to 1 per cent in their research.

4. Discussion and Recommendations

4.1 Discussion and Comparison of the Previous works

The purpose of this section is to summarize a useful reference for developing a new or optimizing Tourism Management System (TMS), in addition find the pros and cons of some review paper. In [23], explore and analyses the effects of Sun and beach destinations and how could be an economic downtime on tourism industry so building a new model help directly for giving clear vision for system, in compare to [25], which take a road for tourism demand analysis, and the special effect COVID-19 pandemic, finding and examination of ways to predict the devastating effects of this pandemic on tourism in future if such happen. In order for predicating and provides fundamental information that can be applied in the planning and development of future strategies. In term of technologies and managing such industry the influences on this sector the [29], provide a theoretical justification and offer practical recommendations on the effective formation and functioning for enhance managing local systems. the paper puts foreword a conceptual approach to innovative management propose an innovative mechanism for local systems management in the Volga Federal District. Whereas [30], present some hypotheses about the impact of the interactivity of online tourism website on customer demand. According to guidelines of authors showed results, the responsiveness of online tourism website positively affects customers' perceptual experience and emotional experience, which further positively influences their satisfaction, which may lead to customer loyalty. Figure 5 shows the statistics chart for research categories used by previous works. Figure 6 shows the statistics chart for algorithms and tools used by previous works. Figure 7 shows the Statistics Chart for Applications and Services used by

Previous Works. Figure 8 shows the statistics chart for target regions addressed by previous works. Figure 9 shows the statistics chart for objectives depended by previous works.
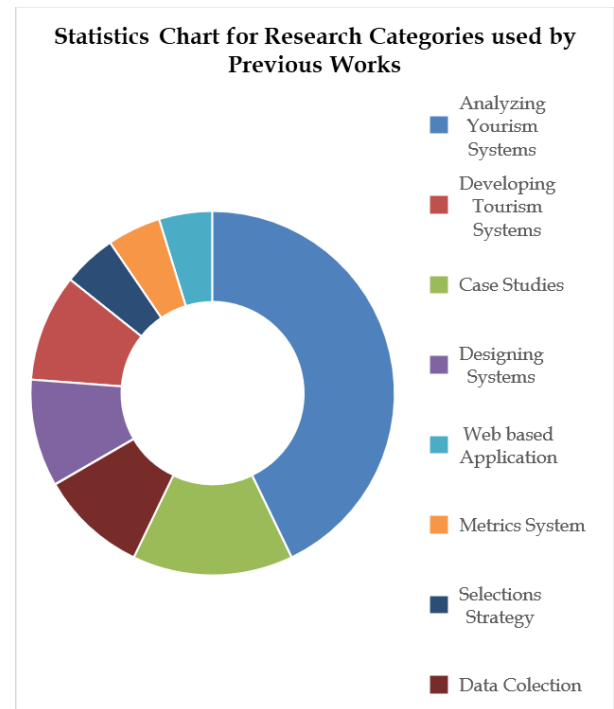

Fig 6. Statistics Chart for Research Categories used by Previous Works.
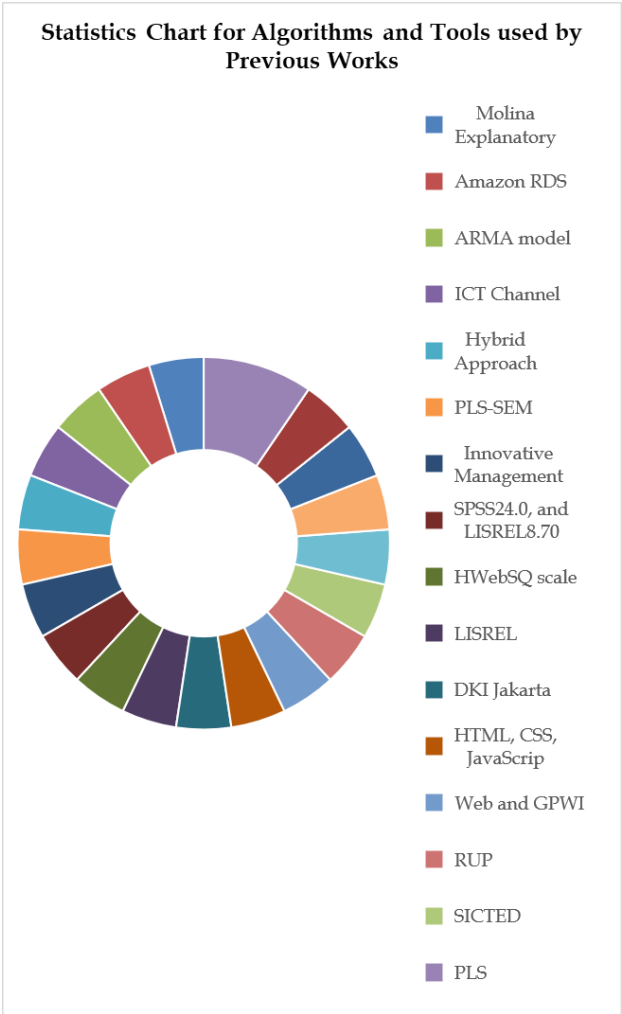
Statistics Chart for Algorithms and Tools used by Previous Works

Legend:
- Molina Explanatory
- Amazon RDS
- ARMA model
- ICT Channel
- Hybrid Approach
- PLS-SEM
- Innovative Management
- SPSS24.0, and LISREL8.70
- HWebSQ scale
- LISREL
- DKI Jakarta
- HTML, CSS, JavaScrip
- Web and GPWI
- RUP
- SICTED
- PLS

Fig 7. Statistics Chart for Algorithms and Tools used by Previous Works.

Statistics Chart for Applications and Services used by Previous Works

Legend:
- Decision Making
- Traveling, Booking, Sightseeing
- Control Arriving Tourisms
- Web and Mobile App.
- Real Time App.
- Predicated system
- Domain and Element Generation
- E-loyalty proces
- Tourism Identification Problems
- GIS
- GPWI
- Religious Areas
- IMS
- CTA
- Intelligent Platform
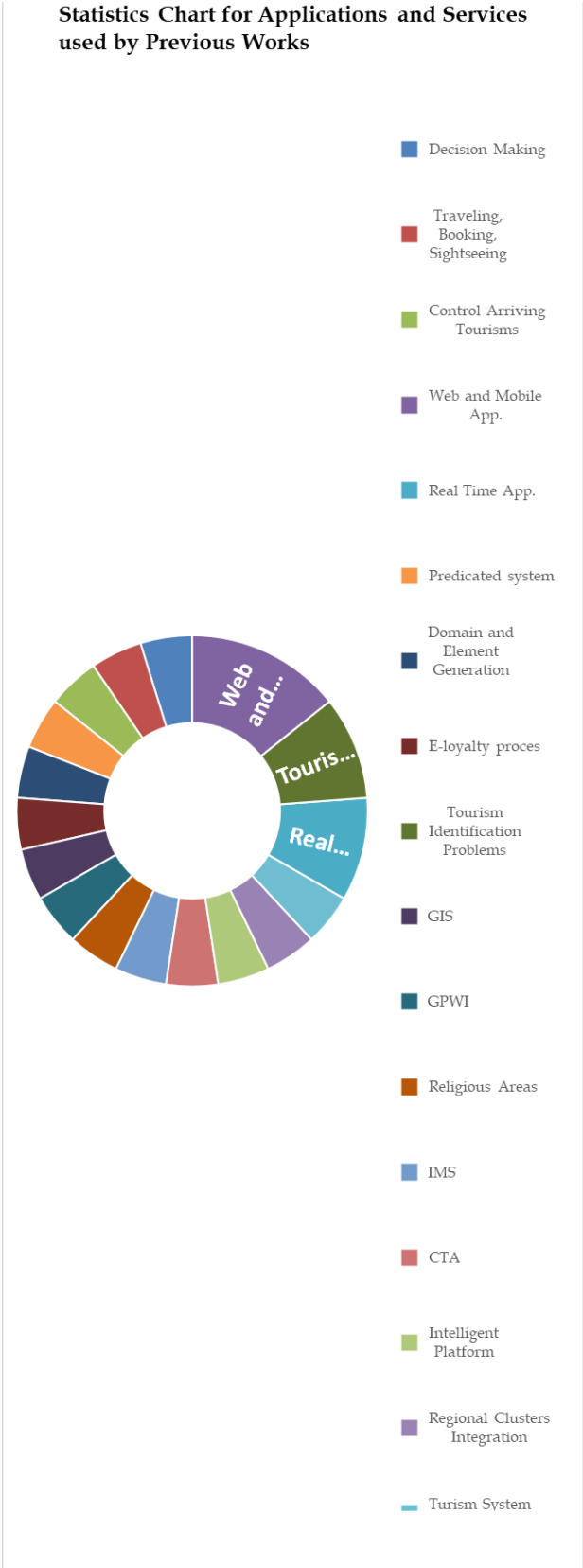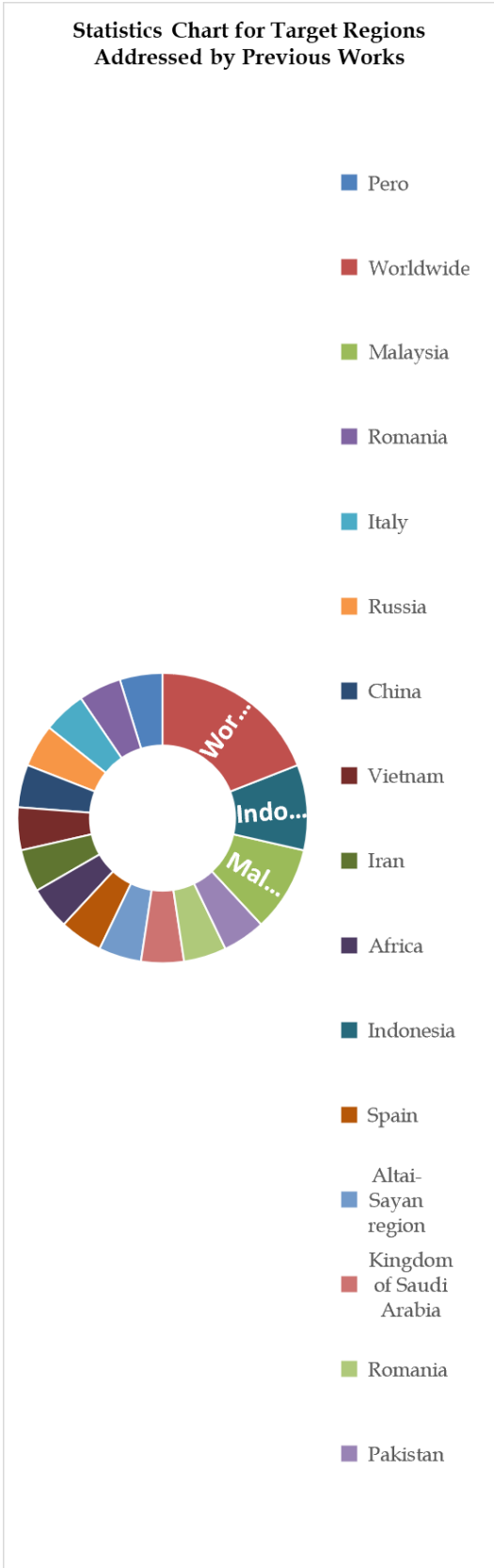- Regional Clusters Integration
- Turism System

Fig 8. Statistics Chart for Applications and Services used by Previous Works.

Fig 9. Statistics Chart for Target Regions Addressed by Previous Works.

Fig 10. Statistics Chart for Objectives Depended by Previous Works.

6. Recommendations

High-quality journal articles having an impact factor were analyzed in this study. The spread of the many types of location-based recommendation apps. Our recommendation focusses on better enhancement and optimization for these studies and papers. In [27], authors used java agent development framework and implement it just for two scenarios involving 100 customers. Our recommendation is using these scenarios in another agent plus, more scenarios and more customer for giving good references for this study. In [28], they focused on hotel website

130

management and the manager of these hotel, they recommend the study is focused for many tourism locations such as coffee-shop and religion and to deal with government for better overcome study. Such as [31], same issues they develop costumer services website for hotel and regard other locations. The authors must develop website or cross platform application that serve different places and sector. To using this system and make it scalable system in they recommend [39], for cloud and cross platform applications. Besides, using multi language in order to reach multi culture and people. Finally, they recommend that using the system development methodology uses PHP and Css and Flatter and python MySQL with the Rapid Application Development (RAD) approach and uses the Unified Modeling Language (UML) which is a tool for system description and design.

7. Conclusion

This review paper focusing on the previous efficient research in the tourism field. The past five years' worth of articles were scrutinized. The research focused on 21 publications published until 2022 in specifically. Researchers will benefit from this study's findings. It is possible to think of the Tourism Management System as a fully integrated tourism website. Such website or web application covers all the areas required, in order to display and view wide range of information for one place. The mass of information and data exchange between tourism and websites or manager of local places could be challenge for this sector of life. What conclude from this review is that, this industry faces multi outside and inside effect, in order to reflect economy and down or fail TMS. In this review paper they investigate some of important and base issues that could be facing TMS, such as places the information and data, manager and services presented to tourism, demand of tourism which it must satisfied from

manager and costumer. Finally, good TMS support local or global passive may income for government or even investment so, giving enhance or creating new model become urgent demand for this industry.

8. References

1. I Gusti Ngurah Putra Arijaya1 IMAP, I Made Agus Wirawan3. Usability Testing in Tourism Object Management System. 2019.
2. World Tourism Organzation (UNWTO). UNWTO. Annual report 2015. Spain: UNWTO; 2016.
3. Baniyai, Maria and Glover, Troy D. (2012) Evaluating Research Methods in Travel Blogs. Journal of Travel Research. V. 51, n.3, p. 267-277
4. Jia, Z. and D. Li (2016). An Application of Knowledge Management System for Tourism Regions. 2016 8th International Conference on Computational Intelligence and Communication Networks (CICN): 375-379.
5. Chan, I. C. C., et al. (2021). "Website design in tourism and hospitality: A multilevel review." International Journal of Tourism Research 23(5): 805-815
6. ACAR*, Ö. F. (2021). "A CONCEPTUAL STUDY ON WEB-BASED MARKETING TOOLS IN THE TOURISM INDUSTRY." European Journal of Digital Economy Research 2(1).
7. Gregurec, I.; Tomičić Furjan, M.; Tomičić-Pupek, K. The impact of COVID-19 on sustainable business models in SMEs. Sustainability 2021, 13, 1098.
8. M.-S. Viñan-Ludeña, "A Systematic Literature Review on Social Media Analytics and Smart Tourism," Springer, Cham, 2019, pp. 357–374.
9. M. Trunfio and M. Della Lucia, "Engaging Destination Stakeholders in the Digital Era: The Best Practice of Italian Regional DMOs," J. Hosp. Tour. Res., vol. 43, no. 3, pp. 349–373, Mar. 2019.
10. Pencarelli, T. (2019). "The digital revolution in the travel and tourism industry." Information Technology & Tourism 22(3): 455-476.
11. Akadiri, S. S., et al. (2018). "Examining the causal impacts of tourism, globalization, economic growth and carbon emissions in tourism island territories: bootstrap panel Granger causality analysis." Current Issues in Tourism 23(4): 470-484.
12. Lidia Andrades FD. Tourism Management. 2015.
13. jia Z. Designing a Tourism Information System with emphasis to Purba Medinipur. 2021.
14. Visadsoontornsakul P. E-Framework for Tourism Product Scoring. 2020.
15. Guo, S. S. and Y. Y. Wu (2014). "Design and Implementation of Tourism Management Information System." Advanced Materials Research 971-973: 1916-1919.
16. Ma Lei. Self-service travel system based on intelligent solution[J]. Journal of Computer Systems,26(03,57-62(2017).(in Chinese).

17. Li Qingxi, Chen Yineng, Lin Mei, et al. Research and Design of Intelligent Interpretation System for Smart Tourism[J]. Internet of Things Technology, 7(5), 80-81(2017).(in Chinese).

18. Zhang Zhanzhao. Application of the weighted excavation algorithm in the recommendation system of Zhihui Travel Spots[J]. Digital Technology and Applications, 168-168(2017).

19. Xuefei Gui* Wuhan Donghu University, W. H., 430200 China (2021). "Tourism Management System Based on mobile Internet."

20. Nikhitha Pulmamidi, R. A., Uma Maheswari V (2021). "Intelligent Travel Route Suggestion System Based on Pattern of Travel And Difficulties." Vardhaman College of Engineering, Hyderabad, Telangana, India.

21. Wu, D. C., et al. (2018). "Developing a Web-based regional tourism satellite account (TSA) information system." Tourism Economics 25(1): 67-84.

22. Alves, J., et al. (2022). "Benchmarking of Technological Platforms for Accessible Tourism: A Study Resulting in an Innovative Solution—Access@tour." Applied Sciences 12(8).

23. Ruiz Palacios, M. A., et al. (2021). "Analysis of Tourist Systems Predictive Models Applied to Growing Sun and Beach Tourist Destination." Sustainability 13(2).

24. Sureshan, S. (July 19, 2021). "Beginner's Guide to Cloud based Tourism Management System." 2.

25. Turtureanu, A.-G., et al. (2022). "A Projection Approach of Tourist Circulation under Conditions of Uncertainty." Sustainability 14(4).

26. Pierdicca, R., et al. (2019). "eTourism: ICT and its role for tourism management." Journal of Hospitality and Tourism Technology 10(1): 90-106.

27. Hassannia, R., et al. (2019). "Web-Based Recommendation System for Smart Tourism: Multiagent Technology." Sustainability 11(2).

28. Roeshartono Roespinoedji, Y. M., Muhammad Rozahi Istambul (January 2019). "How the hotel website management influence hotel supply chain management and tourism industry? A case of Malaysian." 13.

29. Chkalova, O., et al. (2019). "Innovative mechanism for local tourism system management: a case study." Entrepreneurship and Sustainability Issues 6(4): 2052-2067.

30. Yuexin Luo, H. L., Yuming Huang, Wei Huang (2019). "The Impact of Interactivity of Online Tourism Websites on Customer Satisfaction." 978-1-7281-1941-0/19/$31.00 ©2019 IEEE.

31. Le, V. H., et al. (2020). "Development and validation of a scale measuring hotel website service quality (HWebSQ)." Tourism Management Perspectives 35.

32. Najmeh Gharibi*, S. M. M. R., Mahshid Nasouti (2020). "Tourists' E-loyalty to a destination website: a case of an Iranian tourism website." Int. J. Tourism Policy, Vol. 10, No. 1, 2020.

33. Muhammad Syaifullah Mahfudz, Z. A., Eva Khudzaeva (2020). "Development of Web-Based Spatial Information System Tourism Industry Event Distribution (Case Study)." Applied Information Systems and Management (AISM) 3.

34. Mango, J., et al. (2020). "Web-based GIS for managing and promoting tourism in sub-Saharan Africa." Current Issues in Tourism 24(2): 211-227.

35. Afnarius, S., et al. (2020). "Developing Web-Based and Mobile-Based GIS for Places of Worship Information to Support Halal Tourism: A Case Study in Bukittinggi, Indonesia." ISPRS International Journal of Geo-Information 9(1).

36. A D Supriatna*, D. T., D Kurniadi and R Cahyana (2021). "Web-based geographic information system for mapping religious tourism object." The 5th Annual Applied Science and Engineering Conference (AASEC 2020).

37. Rabadán-Martín, I., et al. (2019). "Facing new challenges in rural tourism: signaling quality via website." Information Technology & Tourism 21(4): 559-576.

38. Saba Alnusairat1, R. E., Mohd Shukri Ab Yajid3, Johar MGM4, Ali Khatibi5 (2021). "INFORMATION SYSTEM, GEOGRAPHY, INFORMATION MANAGEMENT SYSTEM AND TOURISM PLANNING: A GEOGRAPHICAL PERSPECTIVE FROM MALAYSIA." PalArch's Journal of Vertebrate Palaeontology, 18, 2 (2021).

39. Ma, S., et al. (2017). Developing a Creative Travel Management System Based on Software Reuse and Abstraction Techniques. 2017 IEEE 41st Annual Computer Software and Applications Conference (COMPSAC): 419-424.

40. Dunets, A. N., et al. (2019). "Selection of strategic priorities for sustainable development of tourism in a mountain region: concentration of tourist infrastructure or nature-oriented tourism." Entrepreneurship and Sustainability Issues 7(2): 1217-1229.

41. Hala Almaimoni, N. A., Fatima Asiry, Safa Aldossary, Mutasem Alsmadi, Ibrahim Al-Marashdeh, Usama A Badawi, Muneerah Alshabanah And Daniah Alrajhi (2018). "Developing and Implementing WEB-based Online Destination Information Management System for Tourism." International Journal of Applied Engineering Research ISSN 0973-4562 13.

42. Kádár, B. and M. Gede (2021). "Tourism flows in large-scale destination systems." Annals of Tourism Research 87.

43. Khan, A., et al. (2020). "Tourism and Development in Developing Economies: A Policy Implication Perspective." Sustainability 12(4).