# An Information System Landscape of Indonesia Tourism Destination

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## Abstract

*Tourism and information technology are two things that are currently interrelated. The use of information technology in the tourism sector is very influential in its current development. One of the information technologies approaches used is the information system regarding tourist destinations in Indonesia. The use of the information system is used to make it easy for media users to access information about tourist destinations. All kinds of information conveyed from destinations, routes, attractions, facilities, and others are combined into one information system. In this paper, we present an information system landscape of indonesia tourism destination. We review information system usage for tourism destination. We show that the use of the information system for tourist location destinations can continue to be developed to get the trust of its users, starting from the facilities in the system, to the benefits of its use such as ease of search, ordering or reservation, and others. Finally, we present open problems for future research recommendations.*

**Keywords:** *Technology; Information System; Tourism; Destination; Indonesia.*

## 1. Introduction

The development of technology today is very fast, technology is like being held in the hand of a hand and almost everyone can afford it. Over time, technological developments have greatly influenced social life. Technology that always helps humans to do something and get something cannot be separated from human life in the present and in the future. Innovations from the creation and development of technology are always created along with the development of science in the world. In Indonesia, the application of modern technology is quite good, although not as sophisticated and modern as the technology used by developed countries in the world. However, their use and utilization have been maximal in helping people access and obtain information. The advancement of existing knowledge greatly affects the quality of technology that will be created and consumed by the community. In the tourism sector itself, the application of technology is carried out with the right target [1,2].

The existence of technology influences the mindset of the community in determining the tourism destination to be aimed, starting from planning the trip, during the trip itself, and after the trip is made [3,4]. The number of OTAs or Online Travel Agents that provide sales of various accommodation tickets and travel packages makes it easy for the public to plan their trip. Figure 1 below shows some of the OTAs in the world.

**Figure 1.** Example of an Online Travel Agent (source:www.guideota.blogspot.com)

Through information technology, it is able to provide information about a tourist attraction, then tourists will receive this information by accessing it via their smartphone. Technology inherent in humans has an impact on how quickly criticism and suggestions are conveyed to tourism actors so that they can quickly provide improvements and improvements in their services.

Motivated from aforementioned explanation, in this paper, we present an information system landscape of indonesia tourism destination. We review information system usage for tourism destination. We show that the use of the information system for tourist location destinations can continue to be developed to get the trust of its users, starting from the facilities in the system, to the benefits of its use such as ease of search, ordering or reservation, and others. Finally, we present open problems for future research recommendations. The rest of this paper is organized as follows: Section 2 presents the theoretical background. Section 3 presents the review results related to the main topic of this work. Section 4 presents discussion and following by open problems. Finally, Section 5 concludes this work.

## 2. Research Methodology

Information system is a system that provides information for management in making decisions and running company operations, where the system is a combination of human, information technology and organized procedures [5,6]. The use of information systems is divided into several parts, including marketing information systems, human resources, manufacturing, finance, accounting, management and executives. Figure 2 below illustrates how the information system works.



**Figure 2.** How the Information System Works (source:www.blog.gamatechno.com)

Tourism is one of the sectors in the world that is able to build a country's economy, especially Indonesia [7,8]. Since the tourism sector has begun to develop and has enormous potential in increasing the country's foreign exchange earnings, the economy in Indonesia, especially around tourist areas, has become good and is based on the tourism sector in their livelihoods. It can be seen that since tourist attractions in every corner of Indonesia are
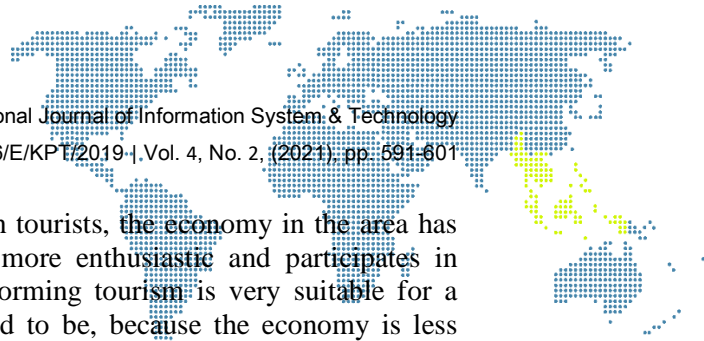
reached by many tourists, both domestic and foreign tourists, the economy in the area has increased rapidly. The local community becomes more enthusiastic and participates in developing tourism in their area. The process of forming tourism is very suitable for a developing country like Indonesia. Indonesia is said to be, because the economy is less fortunate like other developed countries. As time goes by, the wider community is increasingly aware of the quality of tourism and they are already oriented towards changing tourism in their own areas. Figure 3 below shows the branding logo about Indonesian tourism.



**Figure 3.** Indonesian Tourism Branding Logo (source:www.portonews.com)

A tourist destination is an area in which there is a tourist attraction or tourist attraction [9,10]. Tourist destinations not only provide one or two tourist attractions, but can also provide several tourist attractions. The tourist attraction in a tourist destination can be in the form of several combinations such as natural tourism, artificial tourism, religious tourism, and others. In it, there are tourism actors who cooperate with each other in order to provide services to visitors or tourists. Figure 4 below shows one of the leading tourist destinations in Indonesia.



**Figure 4.** One of the Tourist Destinations in Indonesia
(source:www.travel.kompas.com)

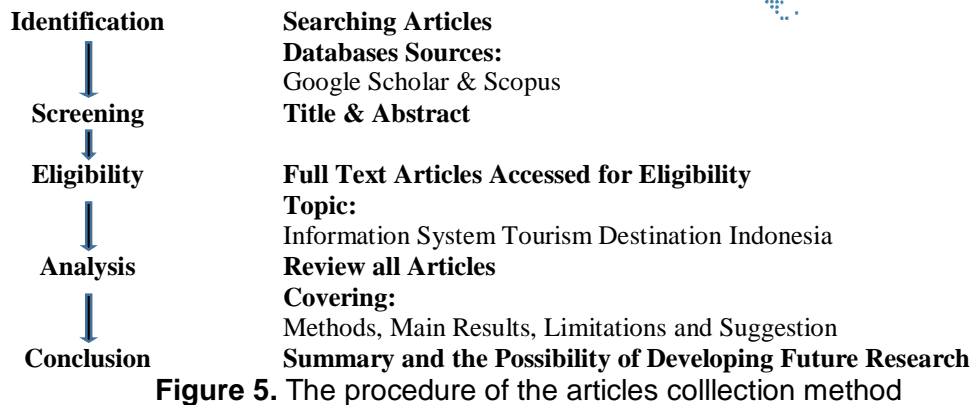## 3. Results and Discussion
### 3.1. A Review of Information System of Indonesia Tourism Destination
This section presents a review of information system for tourist location destinations in Indonesia. The sources of literatures are mainly on scientific publication from local journals and few numbers from international journals. Meanwhile, they are collected through Google Scholar platform as well Scopus database under a specific keyword, i.e., a combination of the following keywords:

*Sistem Informasi* (Information System) + *Pariwisata* (Tourism) + *Destinasi* (Destination) + Indonesia
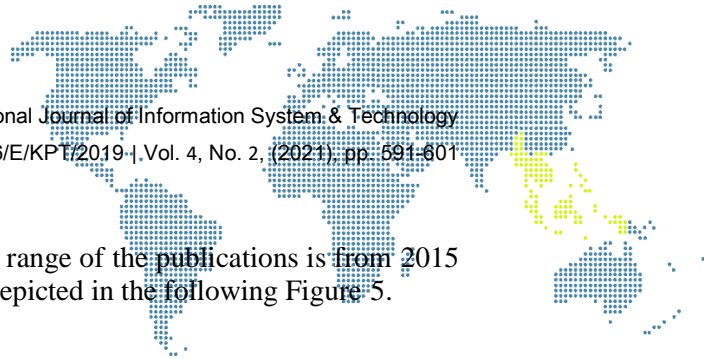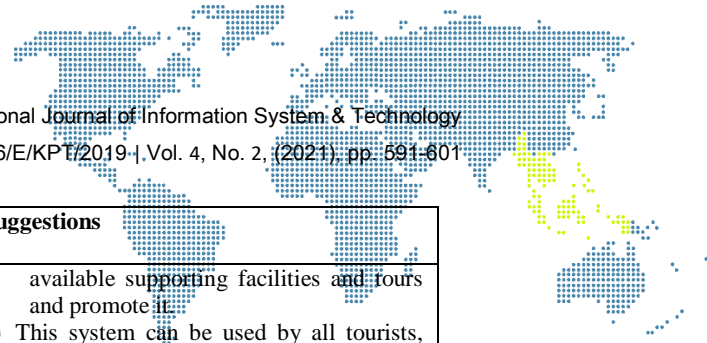
As a result, there are 14 related works collected. The range of the publications is from 2015 to 2020. The procedure of the colllection method is depicted in the following Figure 5.
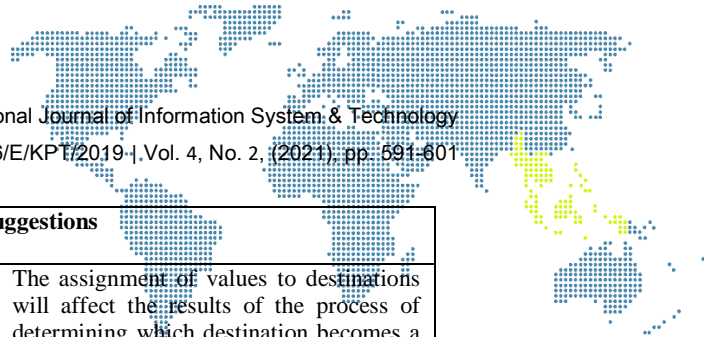
| Identification | **Searching Articles** |
| | **Databases Sources:** |
| | Google Scholar & Scopus |
| Screening | **Title & Abstract** |
| Eligibility | **Full Text Articles Accessed for Eligibility** |
| | **Topic:** |
| | Information System Tourism Destination Indonesia |
| Analysis | **Review all Articles** |
| | **Covering:** |
| | Methods, Main Results, Limitations and Suggestion |
| Conclusion | **Summary and the Possibility of Developing Future Research** |

**Figure 5.** The procedure of the articles colllection method

By applying procedure of the articles colllection method as depicted in Figure 5 above, Table 1 as follow described a summary of the review results.
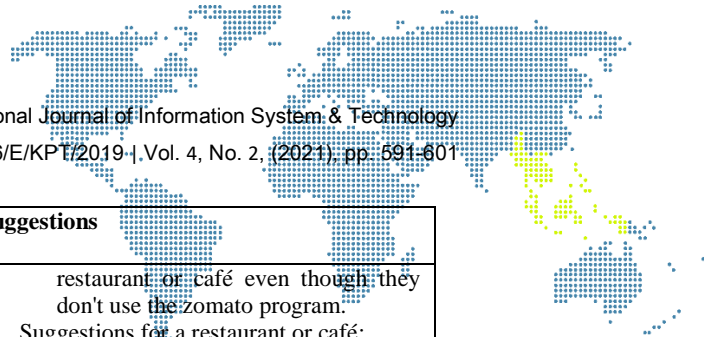
**Table 1.** A summary of review results

| Authors & Year | Method | Description | Suggestions |
|---|---|---|---|
| Hariyanto, (2015) in [11] | Web-based Services Information Systems | Designing a Web Services Based Tourism Information System | The tourism industry needs to collaborate with each other to improve the quality of information. Then to facilitate the data transfer process by not taking into account the existing systems in communication between systems using web service technology. For the continuity of this research, so that the system design is more accommodative according to the needs of the field, the system design can be combined with payment transactions. In order to complete the design of a system that is easy to access but safer, the payment transaction mechanism is very important. |
| Yuliani and Prasojo, (2015) in [12] | This study uses the System Development Life Cycle or SDLC method | Design of a Web-Based Tourism Object Information System Using the User Centered Design (Ucd) Method. | a) The addition of 2 language versions, namely Indonesian and English, can be done to develop the existing Information System. b) Using a 2-level security system and user login sessions on every web page to maintain website security. c) It is hoped that the development of the next research will be able to expand the range of maps and tours that are displayed to be more dynamic. |
| Handayaningsih, (2015) in [13] | This research has used literature literature method and website observation | Multiuser Tourism Information System Model Using E-Mall Concept. | The concept of E-mall which can be used has the aim that people who are going on tourism can more easily get detailed information and can make transactions on the website. Business partners benefit from the opportunity to manage websites according to their business processes. |
| Afrina, *et al*. (2016) in [10] | Data is obtained through direct research or observation of | Development of an Android Mobile-Based Tourism | a) The Android Mobile-Based Tourism Information System that has been created can help DINBUDPAR Palembang to convey information on |

| Authors & Year | Method | Description | Suggestions |
|---|---|---|---|
| | related agencies. | Information System | available supporting facilities and tours and promote it. <br> b) This system can be used by all tourists, both local and foreign, to get to tourist destination locations by looking at maps and information on travel routes to destinations. |
| Wibowo, *et al*. (2016) in [14] | This research has used the System Development Life Cycle method. | Web-Based Tourist Information System Application Suggestions for developing an information system for Central Java tourist destinations, including: | a) New and interesting features are needed to improve the information system because it is still simple. <br> b) There is no information exchange forum between users in this application. <br> c) A more attractive web appearance. |
| Anamisa, *et al*. (2017) in [15] | The research method used is the collection of street names in Jember. | Multimedia-Based Tourism Location Search Information System. | The design and development of an information system for locating tourist destinations in Jember Regency has been successfully carried out so that it can provide information about these destinations. In addition, tourists or users can find out the details of the route taken, whether the contours of the road are good or not, so they can help with the limited information presented by Google Maps. |
| Suryani and Amalia, (2017) [16] | This research has used the Artificial Intelligence Markup language method combined with the technique of building applications that can talk to humans. | AIML-Based Tourism Object Chatbot Application. | a) So that the chatbot can add input responses with the wrong word in typing. <br> b) So that the chatbot is able to add more information to tourist destinations. <br> c) It is hoped that the chatbot can learn on its own |
| Nurhayati and Ristanto, (2017) in [17] | This study uses data collection methods from various existing sources. | Web-Based Tourism Information System. | We recommend that the system has a map view in determining the location of tourist attractions or it is called a Geographical Information System. It is necessary to develop a search based on the type of information in order to make it easier for tourists to find certain information. Development is required in the data validation process that is entered by contributors who are regulated by the admin, and displays the identity of the article publisher contributor on the website. |
| Rizal, (2017) in [18] | The method used in this study is the Analytical Hierarchy Process method. | Designing Tourism Location Applications Using an Android-Based Sequential | a) using this method is able to provide consideration in determining tourist destinations. <br> b) The results from the calculation can be used as a recommendation for tourists in determining the tourist destinations to be visited. |

| Authors & Year | Method | Description | Suggestions |
|---|---|---|---|
| | | Search Algorithm. | c) The assignment of values to destinations will affect the results of the process of determining which destination becomes a choice. |
| Nurmi, (2017) in [19] | The methods in this research are observation, interview, and questionnaire. | Building a Tourism Office Information System Website. | a) The existence of an information system website about tourist destinations is very helpful in selecting destinations and makes it easier for tourists to get complete and efficient information.<br>b) The website of the tourist destination information system provides convenience, among others: makes it easy to find information about special food destinations and inns in Payakumbuh. Speed up the search for destinations because there is a database. Simplify the management of tourism data by related agencies. Provide accurate, precise, and quality data to tourists and related parties.<br>c) This system website contributes to management in managing and processing data, improving services, better control, efficiency, more economical, and providing value benefits for related agencies and tourists. |
| Mantala, (2017) in [20] | Data obtained from the Tourism, Youth and Sports Office of South Kalimantan Province and observation and data mining. | Development of an Android-Based Tourism Information System. | a) The provision of information about tourism to the city of Banjarmasin is still not optimal even though there is already information on the website and social media belonging to the relevant department because the information submitted is incomplete.<br>b) The tourism information system belonging to the city of Banjarmasin which has been developed has fulfilled the operational, technical, economic and legal feasibility tests.<br>c) Compared to the investment costs incurred, the system developed meets benefits.<br>d) The Banjarmasin City Tourism Information System has been published on the Google Play Store and can be downloaded by everyone. |
| Mulyani, (2017) in [21] | Quantitative methods are used in this research. | Strategic Planning of Wildlife Park Information Systems | Based on the analysis of the strategies that have been carried out, there are several plans that can be implemented so that this tourist park becomes a national standard tourist destination. Some of the plans include;<br>a) Animal Collection, Ticket Sales, Personnel, Finance, and Company Asset Management Applications.<br>b) Dss<br>c) Sign System<br>d) Creating a website as a medium for advertising, promotion, and ticket sales.<br>e) Free internet service. |
| Pradana and Dewantara, (2018), in [9] | This research has used a qualitative descriptive method. | Use of Information Systems to Support the Selection of Culinary | a. Advice on zomato parties:<br>1) Updating information on the application page<br>2) Improved features related to reports to the restaurant.<br>3) Improve communication with the |

| Authors & Year | Method | Description | Suggestions |
|---|---|---|---|
| | | Tourism Locations | restaurant or café even though they don't use the zomato program. b. Suggestions for a restaurant or café: 1) Improve the quality of products and services that have an impact on reviews and ratings of visitors or zomato users. 2) Communicate with zomato parties to build a good relationship in business. 3) Gather votes to give zomato recommendations to open up regional expansion of zomato apps. c. The suggestion for users is to suggest zomato parties to expand their reach in Indonesia. d. Suggestions to the government: 1) examine the use of zomato applications to determine the effectiveness and impact of their use. 2) Monitor the need for information on culinary attractions in areas with great potential. |
| Arkan, (2018) in [22] | The data obtained is a description of events, activities, objects, and transactions that are meaningless to the user. | Webserver-based tourism object information system. | The information on this website is in the form of information about destination maps in Jelitik, namely Pantai Tikus, Rambak, Pesona Bay, Tikus Mas, and Tanjung Pesona. The map serves to make it easier to visit Jelitik and enjoy the beautiful beaches in Jelitik. It is hoped that with this website, tourists will get complete information when visiting Jelitik and find out about beach destinations there. It is hoped that this webtie can increase the number of tourists visiting Jelitik and its beaches. The profiles and facilities of the beaches in Jelitik are also informed on this website. |
| Arfandy, (2020) in [23] | The research stage is carried out following the software development stage of the prototype model. | Design and build an android-based tourism information system using the prototyping method | Utilizing VR or Virual Reality to present images of tourist destinations and attractions to make tourism applications more attractive. Add information about the performing arts so that more information systems are available. Adding information regarding the number of viewers at each destination or tourist attraction in order to obtain information on user interests. |

From Table 1 above, the collaborations among the tourism industries are needed to improve the quality of information. Using web service technology to facilitate the data transfer process by not taking into account existing systems in communication between systems. The system design is more accommodative according to the needs of the field and can be combined with payment transactions. The payment transaction mechanism is an important part of completing a system design that is safe and easy to access. The E-Mall concept aims to make it easier for the public to access and get detailed information and to make transactions on the website. The development and design of a location search information system for tourist destinations in Jember is said to be successful so that it can provide information about these destinations. Information in the form of a map of
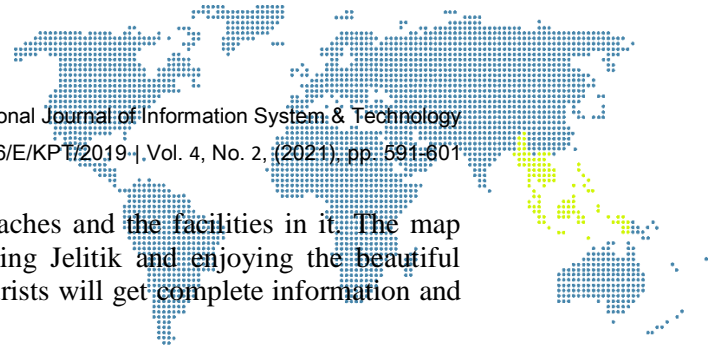
destinations in Jelitik, which consists of several beaches and the facilities in it. The map functions to make it easier for visitors when visiting Jelitik and enjoying the beautiful beaches there. With this website, it is hoped that tourists will get complete information and be able to increase the number of tourist visits.

The existing Android Mobile-based Tourism Information System is able to assist the related offices of Palembang City in delivering information on existing supporting and tourism facilities and promoting it. This system can be used by all local or foreign tourists to get to the location by looking at the map and available travel routes. It is necessary to develop a search based on the type of information to make it easier for tourists to find certain information. Development in the process of validating incoming data from contributors by admin and displaying the identity on the website is needed.

Able to provide consideration in determining tourist destinations. The results of the calculations can be used as recommendations for tourists in determining the destinations to be visited. The destination assessment affects the outcome of the destination determination process. Then add new features that are useful for improving the information system, a more attractive appearance and adding a forum for exchanging information in the application. Added 2 language versions, namely English and Indonesian, using a 2-level security system and a login session to maintain website security, then expanding the range of maps and areas displayed to make it more dynamic. With the existence of an information system about tourist destinations, it is very helpful in selecting destinations and makes it easier for tourists to get complete, efficient, accurate, and quality information. The website contributes to management in processing data, improving services, control, efficiency, and is useful for related agencies and tourists.

Some plans that can be implemented so that this tourist park becomes a national standard tourist destination are making animal collection applications, ticket sales, personnel, finance, and company asset management, then DSS, Sign System, free Internet, and creating a website as an advertising media, promotion, and ticket sales. In addition, it is also necessary to always update information on the application page, improve features related to reports to restaurants, and improve communication between restaurants and cafes. Improve product and service quality. Assessing the use of zomato applications to determine the effectiveness of their use in promoting culinary.

Make use of Virtual Reality or VR to present images of tourist destinations and attractions to make the application more attractive. Provide additional information about the number of viewers at each destination or tourist attraction in order to obtain information on user interests.

### 3.2. An Information System Landscape of Indonesia Tourism Destination

Based on the literature data that has been obtained in previous section, existing studies mostly used qualitative methods with research on information system development and usage. The results showed that there are still many things that need to be addressed, followed up, and given more attention to information systems regarding tourist location destinations in Indonesia. In summary, we present the following information system landscape:

**a) Features**

The information system regarding tourist destinations in Indonesia needs to provide many features in it that make it easier for users, both tourists and non-tourists to find and access both the website and the application provided. If the information and features are complete, users will feel happy and be able to provide good reviews of the application, website, and destination so as to increase the potential for more exposure and increase the interest of tourists and potential tourists to come to these destinations. The features that can be added include; seach engine, booking ticket, payment, trip planning, maps with road contour, etc.

**b) Concept**

The concept of the information system for tourist location destinations in Indonesia consists of the concept of delivering information in it, both the website and the application. The concept of delivery can be in the form of a brief review with a promotion accompanied by the provision of images and / or videos to make it easier for users to understand the information. In addition, the existing concept can also be in the form of convenience in finding information, even to ordering in it. An attractive concept is able to make users feel satisfied and foster a sense of trust in it.

**c) Cooperation**

Cooperation needs to be done in developing an information system regarding the location of tourist destinations in Indonesia. Collaboration between related parties, namely website or application developers, management of tourist destination locations, government, and tourists. Collaboration is carried out in order to maximize the function of the information system from existing websites and applications. Improvement and assessment can be done, and maximize the promotion in it. Application developers will get suggestions and input from destination managers and the government, while managers and the government will get suggestions from tourists or existing website and / or application users to be submitted to the developer so that better improvements and improvements can be made.

**d) Admin**

The admin who manages the website and / or application must be active in updating the information contained in it and be active in responding to criticism and suggestions given by its users. The admin must also be active in dealing with bugs that can appear suddenly so that they don't interfere with users who are accessing them. Criticism and suggestions submitted by users can be recapitulated and given to destination managers and the government in order to get better and more expected things by users.

## 4. Conclusion

With the rapid development of information and communication technologies in tourism and hospitality sectors, informatios systems has been proven as one effective and efficient approaches in the related fields. This paper has explored the related works on information system model, especially for the location of tourist destinations in Indonesia. Based on the study of the overall literatures available in scientific publication platfroms i.e., an academic jourlas, we have shown that the use of information systems for tourist destination locations is achieved at the level of "quite good". However, there is still a need for improvement and further development as highlighted in Section 4. We have also provided some valuable suggestions for the use in further researches.
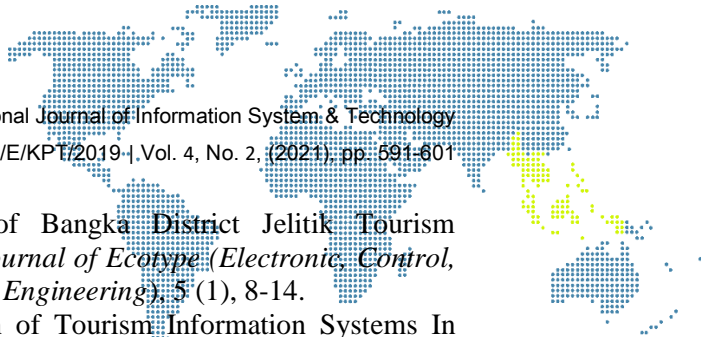
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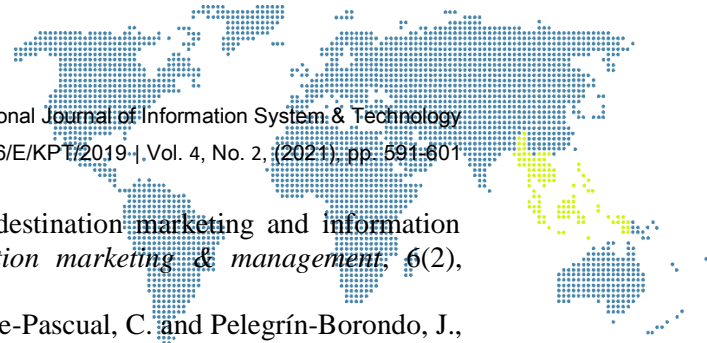
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