

## Original Research Article

# Tourism Information System Development Based on CHSE to Improve Tourist Satisfaction

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**Abstract:** Currently, the condition of tourism information systems in Indonesia is still facing several challenges, one of which is the lack of available information and the slowness of related agencies in promoting tourism; the purpose of this research is to develop a CHSE-based tourism information system to increase tourist satisfaction. This research method is in the form of a case study with the research method of R&D (Research & Development). Research instrument with observation technique and data processing using a purposive sampling technique. Testing is done using primary data. The research phase involves implementing the planned design into a product or innovation. A tourism information system that includes aspects of Cleanliness, Health, safety, and Environment sustainability (CHSE) has a vital role in the tourism industry. Tourism information systems can provide accurate and up-to-date information about tourism destinations' hygiene, health, safety, and environmental sustainability standards. This helps tourists choose destinations that meet CHSE standards, thus increasing their trust and satisfaction. Furthermore, tourism information systems can monitor the implementation of CHSE practices in tourism destinations; with an integrated information system, managers can easily access and update information related to cleanliness, health, safety, and environmental sustainability. The development of a tourism information system in the form of information technology for tourism marketing allows tourists to make reservations, make payments and provide feedback about their experiences. Tourism information systems can increase tourist satisfaction by saving time and effort in transaction processing and getting more efficient services. Thus, developing tourism information systems can increase tourist satisfaction by providing accurate and easily accessible information, personalized recommendations, and effective promotion.

**Keywords:** Information Systems, Tourism, CHSE, Satisfaction.

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## INTRODUCTION

Developing a tourism information system is the process of using information technology to promote tourism and provide easily accessible information about tourist attractions. Several stages involved in the development of a tourism information system include selecting solutions to existing problems, developing an information system to display visuals about tourist attractions, developing a web module to recommend tourist visit times based on a calendar, analyzing and designing tourism information systems, identifying existing tourism conditions. in an area, implementing

public-private partnerships for tourism development, and implementing smart tourism in the tourism industry. The development of a tourism information system can improve tourism promotion, facilitate access to information for tourists.

Indonesia's tourism information system is facing several challenges, including the need for more available information and the slowness of related agencies in promoting tourism (Maruji, 2021). In addition, the COVID-19 pandemic has significantly impacted Indonesia's tourism sector from a social,

economic, and educational perspective (Dekawaty, 2022; Jariah, 2021). Nonetheless, the massive potential of the tourism sector in Indonesia remains a promising attraction (Rianingtyas & Wardani, 2019). Therefore, information technology, such as geographic information systems (IG) and social media, can be used to improve the tourism industry in Indonesia (Murnawan, 2017; Permana & Rahmah, 2021; Sinla E & Batarius, 2019). That aside, Efforts to build digital literacy are also carried out to increase tourist attractiveness in the new average era (Jariah, 2021). In optimizing the products and services of tourist destinations, sentiment analysis can also be used to rank the popularity of tourist destinations (Murnawan, 2017). Although challenges still need to be overcome, developing a tourism information system in Indonesia continues to support the growth of the tourism sector as a source of state and regional income (Islamy, 2019; Nurhayati, 2016).

Presence Online tourism information technology is increasingly influencing human life in meeting their needs. Ease of access with a wide range allows everyone to browse various sites to make buying and selling transactions online. Currently, internet users in Indonesia have reached 64 million people and will continue to grow. Currently, around 25% of buyers are looking for information via the Internet, 23% from newspapers, and 18% through print media (Kompas, 2016). Currently, tourism information systems have reached 96%; only 14% use newspapers and 3% use other print media (Rosadi, 2016). This fact shows that the lifestyle of tourists in recreation encourages the development of online tourism to meet various technological product needs, and the CHSE factor is no exception. Tourism products through digital media can provide many opportunities by prioritizing service to consumers and providing space for tourism agents to find the best potential buyers. The online system makes it easier for tourists with limited time and needs help finding CHSE-based tourism information to avoid extended experience obstacles (Kosasi, 2016). This condition certainly provides a stimulus for the growth of the CHSE-based tourism industry and triggers the movement of economic growth as a whole. The online system makes it easier for tourists with limited time and difficulty finding information about CHSE-based tourism to avoid extended experience obstacles (Kosasi, 2016). This condition certainly provides a stimulus for the growth of the CHSE-based tourism industry and triggers the movement of economic growth as a whole. The online system makes it easier for tourists with limited time and difficulty finding information about CHSE-based tourism to avoid extended experience obstacles (Kosasi, 2016). This condition certainly provides a stimulus for the growth of the CHSE-based tourism industry and triggers the movement of economic growth as a whole.

The emergence of innovations in digital business opens up opportunities to carry out the

transformation process of changing the shape of a CHSE-based tourism information system offline to online. The existence of digital forms of tourism provides excellent opportunities for destinations to expand CHSE market segmentation without space and time limitations. An online tourism information system has also inspired East Java tourism. So far, marketing CHSE-based tourism still relies on brochures, exhibitions, flyers, and banners. All of these media have limitations in conveying information to broad tourists because they are only limited to specific locations and could be more effective in expanding the reach of their market segmentation. On the other hand, the increasing number of competitors makes it more difficult for destinations to maintain performance and performance with a level of profitability. However, with this online tourism information system, all the information conveyed is now more comprehensive than in the East Java region. However, it can already be known and reaches tourists widely in various parts of Indonesia and abroad. In addition, this system also provides opportunities for East Java destinations to build and improve relations between destinations and tourists. However, it can already be known and reaches tourists widely in various corners of the region in Indonesia and even abroad. In addition, this system also provides opportunities for East Java destinations to build and improve relations between destinations and tourists. However, it can already be known and reaches tourists widely in various corners of the region in Indonesia and even abroad. In addition, this system also provides opportunities for East Java destinations to build and improve relations between destinations and tourists.

Online tourism information systems are an example of information technology advancement that have brought about a number of changes, including lower interaction costs between buyers and sellers, more accessible interactions, more options, and leisurely promotional activities, opportunities to increase market share without needing a lot of capital, increased transparency, and services for consumers (Chen & Hung, 2015). By concentrating on online business transactions, the use of online tourism information systems is a business mechanism that operates electronically and offers the chance to develop more intimate and tailored interactions with clients (Li & Yang, 2014). In response to current information, tourists can place orders and make purchases at any time and without regard to location (Xiaohui *et al.*, 2014). The ability to expand a business allows for more flexibility, a wider target market, more affordable and interactive promotional materials, clarity and transparency of operational costs, digitization of goods and services, ease of distribution, and convenience for business transactions across national and cultural boundaries at a relatively lower cost. It also makes it simpler to form business partnerships with patterns of differentiation based on customer needs with specific goods and services. As a result, a crucial component of

developing a market share segmentation strategy for an online tourism information system is to give it additional options to increase its competitiveness and competitive advantages (Kosasi, 2015). The ease of conducting business across cultural and national boundaries with a relatively more cost-effective method, transparency of operational costs, digitalization of products and services, accelerated distribution, facilitation of cross-cultural and cross-national commercial transactions, facilitation of business partnerships with differentiation patterns according to needs and specifications specific products and services (Opreana, 2015). As a result, a crucial component of developing a market share segmentation strategy for an online tourism information system is to give it additional options to increase its competitiveness and competitive advantages (Kosasi, 2015).

Cheaper and interactive promotional media, transparency of operational costs, digitalization of products/services, expediting distribution, providing ease of commercial transactions across cultural and national boundaries with a relatively more effective cost, making it easier to build business partnerships with differentiation patterns according to needs and specifications certain products/services (Opreana, 2015). Therefore, the main requirement for designing an online tourism information system is an essential means of expanding market share segmentation so that it has wider opportunities to gain more competitive advantages and competitiveness (Kosasi, 2015). It provided ease of commercial transactions across cultural and national boundaries in a relatively more cost-effective manner, making it easier to build business partnerships with differentiation patterns according to needs and certain product/service specifications (Opreana, 2015). Therefore, the main requirement for designing an online tourism information system is an essential means of expanding market share segmentation so that it has wider opportunities to gain more competitive advantages and competitiveness (Kosasi, 2015). It provides ease of commercial transactions across cultural and national boundaries in a relatively more cost-effective manner, making it easier to build business partnerships with differentiation patterns according to needs and certain product/service specifications (Opreana, 2015). Therefore, the main requirement for designing an online tourism information system is an essential means of expanding market share segmentation so that it has wider opportunities to gain more competitive advantages and competitiveness (Kosasi, 2015).

Previous research indicates the critical implications for destinations intending to exploit digital businesses online require creative tourism communications. This effect significantly contributes to increasing the expansion of online tourism (Wu *et al.*, 2015). Destinations that successfully market their products online must avoid problems and obstacles,

risks, and threats for customers making purchases through online tourism by protecting prevention and security in online recreation procedures (Al-Matarneh, 2016). Both tourism technical attributes affect the adoption of online tourism systems. Consumers' willingness to use the online tourism system needs to adjust to the attributes of technological influence, including optimism, creativity, and system discomfort. While the influence of tourism attributes, including tourism supply, the suitability of tourism supply, perceptions of control, and pressure. The suitability and attractiveness of tourism supplies can affect user optimism and will indirectly affect user adoption (Li *et al.*, 2015).

This online tourism information system research has particular specifications by offering several advantages, including seeing marketed tourism models and photos, displaying tourist environment videos, displaying product prices, easy access to the desired specifications, attractive website views, and easy updating of information for destinations. The research aims to produce an online CHSE-based tourism information system offering tourism products to expand market segmentation. The research target is more towards methods and efforts to participate in helping regional economic growth without having to go through considerable investment support and allow every layer of tourists to do so. It is a business opportunity to grow a CHSE-based tourism business, especially in East Java.

## 2. METHODE RESEARCH

This research is a case study using the R&D (Research & Development) research method. Research instrument with observation technique and data processing using a purposive sampling technique. Testing is done using primary data. Furthermore, analysis of market expansion to obtain several essential features for consumer needs by using market opportunity analysis and design using business model design, customer interface, and market communication (Mohapatra, 2013).

Research & Development (R&D) research methods involve a series of steps to produce a product or innovation and test its effectiveness. The steps of the CHSE research R&D method include: 1. Define: This stage involves identifying problems or needs that you want to solve through research and development. The aims and scope of the research are clearly defined. 2. Design: The product design or innovation to be developed is planned at this stage. This design includes aspects such as features, functions, and product appearance. 3. Development: This stage involves implementing the planned design into a product or innovation. The development process includes prototyping, testing, and continuous improvement. 4. Dissemination: After the product or innovation has been developed, the dissemination stage involves introducing

and using the product in the appropriate environment. Information and research results can also be disseminated through publications or presentations. Several relevant studies using R&D methods are described by Bose *et al.* (2022), who used the R&D method to design an educational game application that introduces marine animals in English. Research by Riska & Rahmawati (2022) uses the R&D method to develop a contextual learning model based on the concept sentence method with photo series media to improve students' narrative skills. R&D methods are used in various research and development fields to produce products, innovations,

### 3. RESULTS AND DISCUSSION

The tourism information system, which addresses the sustainability of Cleanliness, Health, Safety, and the Environment (CHSE), is crucial to the sector. First, travel destination standards for sanitation, health, safety, and environmental sustainability can be accurately and timely reported through tourist information systems. This promotes trust and happiness among visitors by assisting them with selecting places that adhere to CHE standards.

The management and oversight of the adoption of CHSE practices in tourist locations can also be facilitated by tourism information systems. Managers may quickly access and update information on tidiness, health, safety, and environmental sustainability with the use of an integrated information system. This enhances the effectiveness and efficiency of destination management for tourism.

In addition, the tourism information system also plays a role in promoting and building awareness about the importance of CHSE among the public and tourism actors. Information conveyed through information systems can increase understanding and awareness of the importance of maintaining cleanliness, health, safety, and environmental sustainability in tourism activities. Thus, a tourism information system that integrates CHSE aspects becomes vital in ensuring sustainable tourism development, protecting the health and safety of tourists, and protecting the environment.

Tourism conditions regarding Cleanliness in East Java have changed significantly due to the COVID-19 pandemic. To recover the tourism sector, Indonesia's government and tourism industry players have implemented a Cleanliness strategy. The CHSE certification program was launched to increase tourist confidence and ensure cleanliness, health, safety, and environmental sustainability in tourism destinations (Asshofi *et al.*, 2023; Amelia & Prasetyo, 2022).

CHSE is implemented in various tourism sectors, including homestays, restaurants, tourist attractions, and hotels. Health protocols such as washing hands, maintaining cleanliness, and using

masks are also emphasized in efforts to reduce the transmission of COVID-19 (Indra, 2022; Febriyanto *et al.*, 2020). In addition, collaboration between the government, industry players, and the community is also an essential factor in improving tourism conditions during a pandemic (Parahiyanti *et al.*, 2022).

Despite the negative impact on the tourism industry, recovery and adaptation efforts continue. Innovation is the main thing in dealing with the current situation, including using information technology and digital marketing to promote tourism (Anggarini, 2021; Salim *et al.*, 2022). In addition, improving the quality of service and the professionalism of tourism object managers is also a focus on improving the image of Indonesian tourism (Santoso, 2021). With efforts to implement CHSE and collaboration between various parties, tourism conditions regarding Cleanliness in Indonesia can improve and restore tourist confidence in visiting tourist destinations in Indonesia (Kusuma *et al.*, 2021).

Tourism conditions related to health and safety in East Java have experienced a significant impact due to the COVID-19 pandemic. Several studies have been conducted to understand the impact of the pandemic on the tourism sector in East Java and the strategies that can be implemented for its recovery. The results of the study identified the contribution of the tourism sector in Pacitan Regency to the East Java Province's tourism sector recovery strategy during the COVID-19 pandemic. The research focuses on Jatim Park Batu, a famous tourism destination in East Java. This research predicts the trend of tourist visits during the COVID-19 pandemic. Uncertainty about the number of tourists each month influences operational and strategic decision-making at Jatim Park.

This research finds the impact of the COVID-19 pandemic on beach tourism in East Java, focusing on Watu Ulo Beach in Jember and Gemah Beach in Tulungagung. This research explores tourism management strategies in Dolan Park, Pandanrejo Village, Batu City, which has also been affected by the COVID-19 pandemic. This research describes the impact of the pandemic on the tourism sector in Batu City and looks for effective management strategies. Overall, tourism conditions related to health and safety in East Java have experienced a significant impact due to the COVID-19 pandemic. These studies provide insights into contributions, predictions of tourist arrivals, impacts on coastal tourism, and management strategies that can be implemented to restore the tourism sector in East Java. The development of tourism information systems can increase tourist satisfaction through several steps. First, tourism information systems can provide accurate, up-to-date, and easily accessible information about tourist destinations, including available locations, facilities, activities, and attractions. Saniati *et al.*, (2022), with

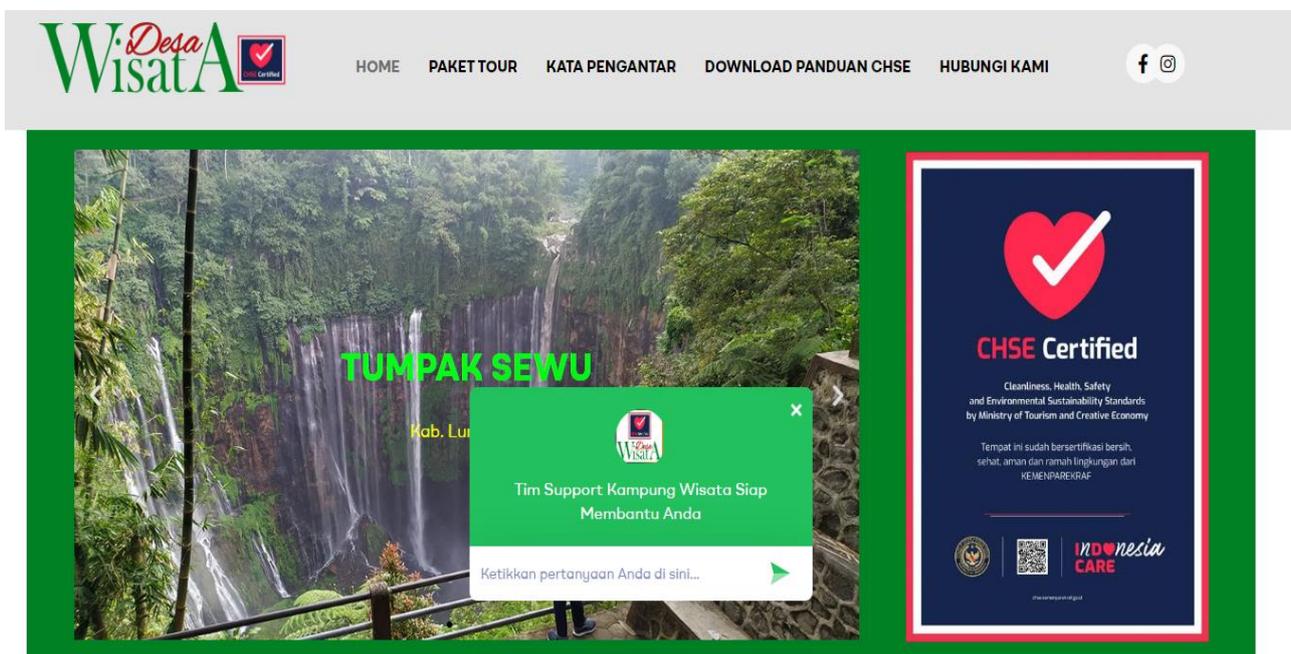
complete and transparent information, tourists can make better decisions in choosing tourist destinations that suit their preferences.

Second, tourism information systems can provide personalized recommendations and suggestions based on tourist preferences and interests. For example, developing a season calendar-based tourist visiting time recommendation web module can assist tourists in planning their visits by considering weather conditions and activities that are appropriate to certain seasons, as is the case with research (Tamu *et al.*, 2023). This can increase tourist satisfaction because they can optimize their travel experience. In addition, information technology, such as information technology for tourism marketing, can help increase the visibility and accessibility of tourist destinations, especially in the new standard era; this supports research (Sinaga *et al.*, 2021). With effective promotion through social media and websites, tourists can easily find information about tourist destinations and get a clear picture of the experience they will get.

Developing a tourism information system facilitates interaction and communication between tourists and tourism service providers. Information technology for tourism marketing allows tourists to make reservations and payments and provide feedback

about their experiences, such as research (Yulianto, 2023). This can increase tourist satisfaction because they can save time and effort in the transaction process and get more efficient services. Thus, the development of a tourism information system can contribute to increasing tourist satisfaction through the provision of accurate and easily accessible information, personalized recommendations, promotions effectiveness, and facilitation of interactions between tourists and tourism service providers; these findings support research (Ikhsan *et al.*, 2019; Cemporaningsih *et al.*, 2020; Hanum, 2020).

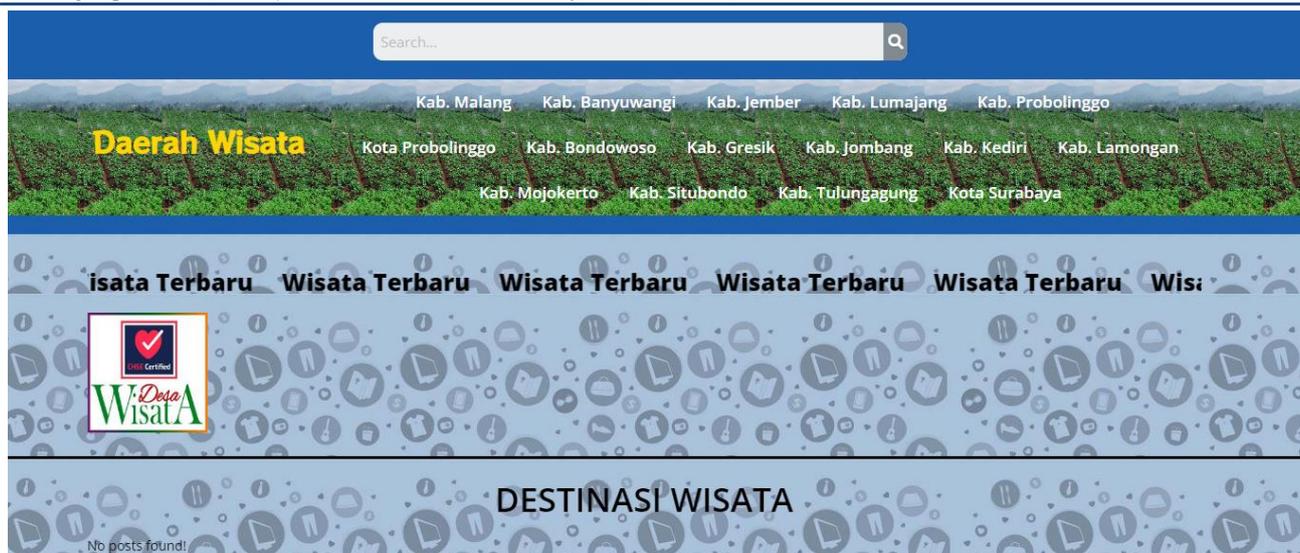
ScaffoldingThe CHSE-based tourism information system development begins with the planning stage to carry out business processes in the tourism mechanism on the current system. This activity is to obtain all information regarding the needs of each CHSE tourism business process. The prototype for the online tourism information system site interface can be grouped into two types: the interface for the back-end page and the interface for the public (general). The interface for the back-end is a display whose access must be validated as an admin, after which this back-end interface page will be provided. In contrast, no previous authorization is needed to access the public interface. The following figure shows the site design for the CHSE Tourism Information System.



Picture 1: CHSE Tourism Information System Website

A profile page for a tourist village may also be seen on the prototype system. This page can exhibit images, travel-related statistics, and other crucial details

like the cities where travel reservations were made and the history of their confirmations.



Picture 2: Tourism Village Profile Site

## CONCLUSION

The Cleanliness, Health, Safety, and Environment Sustainability (CHSE) components of the tourism information system play a significant role in the tourism sector. First, travel destination standards for sanitation, health, safety, and environmental sustainability can be accurately and timely reported through tourist information systems. This promotes trust and happiness among visitors by assisting them with selecting places that adhere to CHE standards. Additionally, CHSE practices can be managed and monitored by using tourism information systems. With an integrated information system, managers can quickly access and update data on environmental sustainability, health, and safety, among other topics. This enhances the effectiveness and efficiency of destination management for tourism. Travelers can book reservations, make payments, and leave reviews thanks to the creation of a tourism information system in the form of information technology for tourism marketing. By reducing the time and effort required for transaction processing and receiving more efficient services, tourism information systems can boost visitor satisfaction. By providing precise and conveniently accessible information, individualized recommendations, efficient promotion, and facilitation of interactions between tourists and tourism service providers, the development of tourism information systems can therefore boost tourist satisfaction. These results concur. Through the development of CHSE-based online tourism information technology, managers and policymakers can leverage the research's contribution as informational material to boost visitor pleasure and trust.

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