

## Implementation of Smart Tourism Concepts to Realize Tourism Digitalization in Bukittinggi City

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### ARTICLE INFO

**Article history:**

Received Oct 18, 2025

Revised Nov 23, 2025

Accepted Dec 21, 2025

Available online Jan 03, 2026

**Keywords:**

Implementation, Smart Tourism, Digital Tourism, Bukittinggi City.

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Published by UIN Suska Riau

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### ABSTRACT

This study was conducted to analyze the implementation of the smart tourism concept in supporting tourism digitalization in Bukittinggi City. This research employed a qualitative approach through in-depth interviews with the Tourism Office, business actors, tourists, and digital media managers. The findings show that the government has utilized digital technology through the tourism website, official social media platforms, and the use of quick response codes at several tourist points. The provision of information regarding destinations, culinary attractions, and tourism activities has improved tourists' access to digital services. However, the study also reveals that interactive features and user-oriented services remain limited. Other challenges include slow website access, lack of two-way communication, and limited digital literacy among tourism stakeholders. This study recommends strengthening digital infrastructure and developing interactive features so that the implementation of smart tourism in Bukittinggi City can run more effectively.

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## INTRODUCTION

Smart tourism refers to the utilization of information and communication technology to obtain various information related to tourism activities (Okty, 2017; Ferdiansyah et al., 2020). The presence of smart tourism can be used as a step to integrate information technology with the tourism sector in tourist destinations. Smart tourism is part of travel activities that provide information services that can be received and utilized by tourists throughout their travel process (Li et al., 2016). This phenomenon must be addressed in line with the evolving trends and developments of the tourism industry. This is crucial because tourism is an industry highly dependent on tourist mobility.

Many cities around the world have adopted the smart tourism concept, such as China, Barcelona, Dubai, and South Korea (González-Reverté, 2019; Khan et al., 2017; Wang et al., 2022; Putri, 2025). In China, smart tourism development has been driven by the widespread implementation of smart city policies since 2010 (Wang et al., 2022; Putri, 2025). Its implementation is carried out through various programs, including: (1) provision of a centralized smart tourism information management platform; (2) development of the “Nanjing Tourist Assistant” mobile application, offering complete information on destinations, hotels, restaurants, and transportation and integrated with social media; (3) development of digital tourism business platforms for online tourism product sales; (4) development of rural tourism marketing platforms; (5) designation of major destinations as pilot objects to enhance technology-based tourist experiences; and (6) installation of interactive experience terminals with 42-inch touch screens at various tourist destinations to provide real-time information.

Bukittinggi City, as one of the leading tourist destinations in West Sumatra, has great potential to implement the smart tourism concept. The implementation of this concept is important to ensure that tourism management is integrated with digital technology development, thereby enhancing tourist experience and improving regional competitiveness both nationally and internationally.

According to the Head of Tourism Marketing and Creative Economy, the target of tourism information digitalization is not limited to domestic tourists but also international visitors. This indicates that digitization efforts aim to expand promotional reach, introduce regional tourism potential to global markets, and facilitate access to information for diverse tourist groups.

**Table I: Tourist Visits in Bukittinggi (2022–2024)**

No	Year	International	Domestic	Total
1.	2022	605	463.145	463.750
2.	2023	20.966	1.020.510	1.041.476
3.	2024	35.152	729.488	764.640

*Source: PPID Bukittinggi City, 2024*

The table shows that tourist visits to Bukittinggi fluctuated, with a significant increase in 2023 followed by a decline in 2024. Domestic tourists dominate the visits, although the number of foreign tourists continues to rise. This condition emphasizes the need for smart tourism implementation to maintain visit stability and improve service quality.

Digitalization efforts by the Tourism Office, including the development of the official website [visitbukittinggi.id](http://visitbukittinggi.id) and social media accounts such as Instagram (@disparbukittinggi), TikTok (@visitbukittinggi), and Facebook (Dinas Pariwisata Bkt), mark the initial steps toward implementing smart tourism in Bukittinggi City.

**Table: Current Condition of visitbukittinggi.id Website**

Aspect	Strengths	Weaknesses
<b>Information</b>	Provides information on destinations, culinary, hotels, events, and photo/video galleries.	Content not updated regularly, limited current news.
<b>Visual Design</b>	Attractive layout with representative destination photos and visuals	Very slow loading time (up to 23 seconds), below user comfort standards.
<b>Promotional Function</b>	Serves as the official tourism promotion media of Bukittinggi City.	No multilingual version available, limiting access for foreign tourists.
<b>Interactivity</b>	Provides contact information for tourism managers.	Lacks interactive features (no live chat, reviews, ratings, or online booking).
<b>Digital Integration</b>	Connected to online media for general tourism information	Social media icons not functioning, no integration with popular platforms (Instagram, TikTok).

The table shows that the website [visitbukittinggi.id](http://visitbukittinggi.id) already serves as the official promotional media with fairly complete information on destinations, culinary attractions, and hotels. However, weaknesses such as slow access speed, limited interactive features, and the absence of a multilingual version remain major obstacles that need to be addressed immediately in order to align with the smart tourism concept.

Although various digitalization efforts have been carried out, including through the development of the official website [visitbukittinggi.id](http://visitbukittinggi.id) as a tourism promotional media, the implementation of the smart tourism concept in Bukittinggi City still faces several challenges. The limited innovation of new tourist destinations has caused digital promotion and tourism management to fall short compared to other tourist cities such as Yogyakarta and Bali. In addition, budget constraints and low technological literacy among tourism actors and MSMEs also serve as obstacles in adopting digital services.

## LITERATURE REVIEW

Smart Tourism is a form of utilizing various potential and available resources to improve the quality of tourist experience. This concept emerges as a result of the development of studies on the relationship between technology and the tourism sector (Gajdosik, 2018; Putra et al., 2020). Smart Tourism can also be viewed as a logical evolution from traditional tourism toward e-tourism, driven by innovation and the technological orientation of the industry and consumers through the extensive

adoption of information and communication technology (ICT) within tourism activities (Werthner & Ricci, 2004; Putra et al., 2020). Digitalization becomes a fundamental element in smart tourism, where all tourism information is presented online through websites, applications, and other digital platforms. Complete, accurate, and easily accessible information has been proven to strengthen the perception of service quality and facilitate tourists in planning their trips (Li et al., 2017).

The development of the smart tourism concept cannot be separated from technological advancements, making this topic the focus of various studies. One of the studies is presented by Jimin Lee, Hanna Lee, Namho Chung, and Chulmo Koo in a journal article titled “An Integrative Model of the Pursuit of Happiness and the Role of Smart Tourism Technology: A Case of International Tourists in Seoul”, cited in (Hanum et al., 2020). In that study, they formulate that smart tourism technology consists of four main dimensions: informativeness, accessibility, interactivity, and personalization. The Informativeness dimension functions to provide accurate, useful, and relevant information for tourists, ranging from destination descriptions, travel routes, to visitor reviews. Accessibility emphasizes the ease with which tourists can access digital tourism services anytime and through various devices, whether desktop or mobile. Interactivity includes the ability of digital platforms to enable two-way communication through features such as live chat, reviews, or interactive maps. Meanwhile, personalization allows the system to adjust content and services according to user preferences, such as destination recommendations, language options, or personalized travel planning (Hanum et al., 2020). The integrated implementation of these four dimensions enhances destination attractiveness, improves the quality of tourist experiences, and makes tourism services more adaptive to the development of digital technology.

International studies highlight the role of recommendation systems, data analytics, and mobile applications in enhancing personalized tourism services (Werthner & Ricci, 2004). Recommendation engines and personalization modules can provide relevant travel routes, thematic packages, and event notifications based on user preferences, thereby increasing user engagement and word-of-mouth recommendations. In addition, the integration of interactive maps, virtual tours (360°), and QR Codes at tourist points has been proven to improve field information accessibility.

## METHODOLOGY

This study was conducted using a qualitative approach with the aim of obtaining an in-depth understanding of the implementation of the smart tourism concept in realizing tourism digitalization in Bukittinggi City. Data collection techniques were carried out through in-depth interviews with key informants who were considered to have knowledge, experience, and direct involvement in tourism management. The main informants in this study include the Head of Tourism Marketing and Creative Economy of the Bukittinggi City Tourism Office, MSME actors and tourists who utilize digital media, as well as Dapur Media. The selection of informants was based on their expertise and the relevance of the information needed regarding governance and the implementation of smart tourism. Data analysis was carried out in stages through data reduction, data presentation, and drawing conclusions and verification, so that the research results could portray the actual conditions in the field.

## RESULTS AND DISCUSSION

The implementation of the smart tourism concept in Bukittinggi City already has a clear regulatory foundation. This can be seen from the availability of Bukittinggi City Regional Regulation No. 1 of 2020 concerning the Master Plan for Bukittinggi City Tourism Development for 2019–2025, which serves as a guideline for the development of destinations, marketing, and tourism institutions. In addition, the Bukittinggi City Government has also ratified the Regional Regulation on the Electronic-Based Government System (SPBE), which aims to realize digital-based government governance. The presence of this regulation provides a legal framework for the implementation of digitalization, including in the tourism sector, so that every program related to smart tourism has a clear direction. Thus, although there is no specific regulation that explicitly mentions the term “smart tourism,” the existing regulations already support the initial steps of tourism digitalization in Bukittinggi City.

In the aspect of technology-based digitalization, the implementation of smart tourism can be classified into several components, including beacon signals, sensors, smart cards, social media, websites, virtual reality (VR), augmented reality (AR), digital applications, public Wi-Fi, QR codes, and recommendation systems (Dharani & Baskar, 2021).

The Bukittinggi City Tourism Office has begun directing its information services toward digitalization, as seen from the utilization of various digital platforms such as social media, the official website [visitbukittinggi.id](http://visitbukittinggi.id), and the provision of destination recommendation systems for tourists. However, several other technological elements have not been fully developed, so the implementation of the smart tourism concept in Bukittinggi City still needs further optimization.

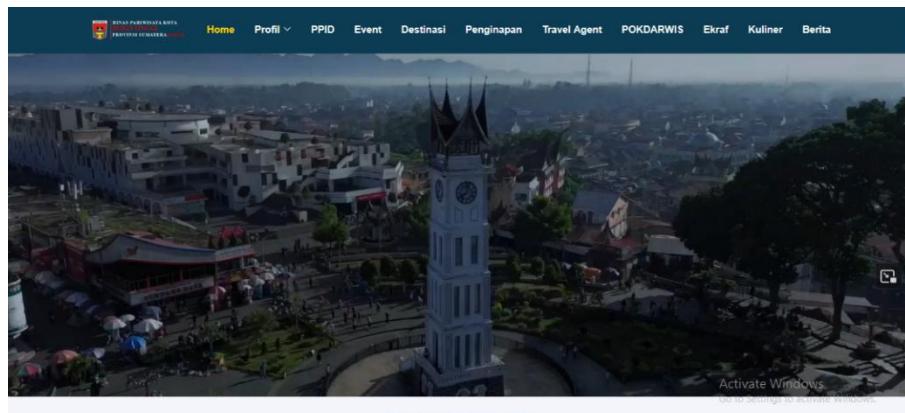


Image 1: [visitbukittinggi](http://visitbukittinggi.id) Website  
Source: [visitbukittinggi.id](http://visitbukittinggi.id) (2025)

The official website [visitbukittinggi.id](http://visitbukittinggi.id) functions as the center for digital tourism information and promotion for Bukittinggi City. Through an attractive visual display, this site provides various features such as lists of top tourist destinations (Jam Gadang, Ngarai Sianok, Lobang Jepang), cultural event schedules, information on local culinary specialties, accommodation, tourism news, as well as photo and video galleries. These features support tourists in planning their visits and strengthen the image of local tourism promotion. Although the presence of this website represents an initial step toward tourism digitalization, its implementation does not yet fully reflect the smart tourism principles comprehensively.

The Bukittinggi City tourism social media accounts are present on Instagram under the name “disparbukittinggi,”

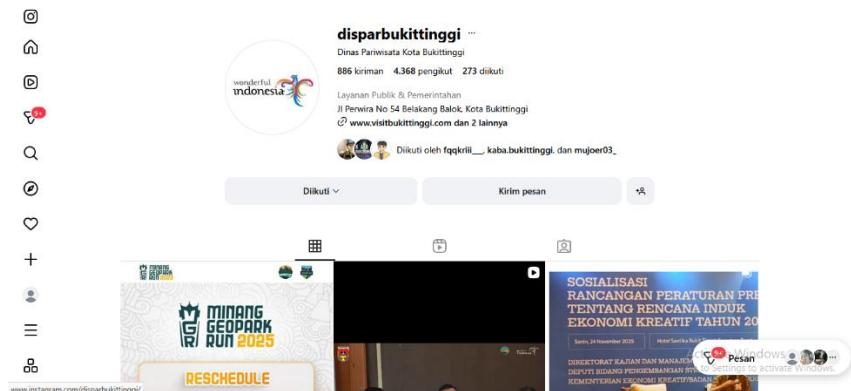


Image 2. Instagram of Bukittinggi Tourism Office (disparbukittinggi)

On TikTok under the name “@visitbukittinggi,”

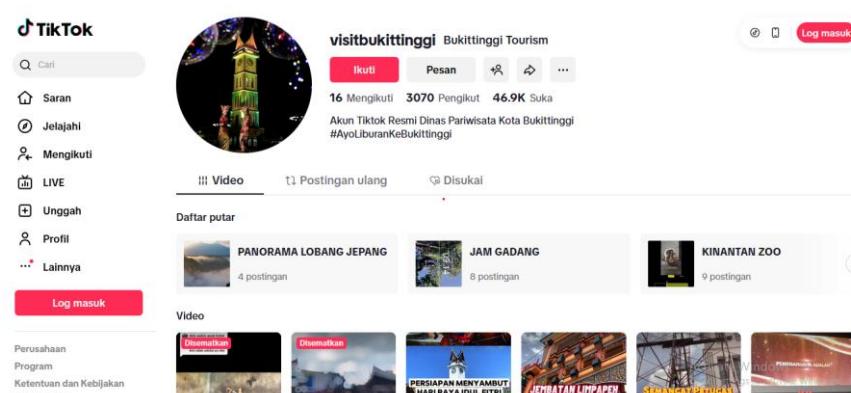


Image 3. Bukittinggi Tourism TikTok (visitbukittinggi)

And on Facebook under “Dinas Pariwisata Bkt.”

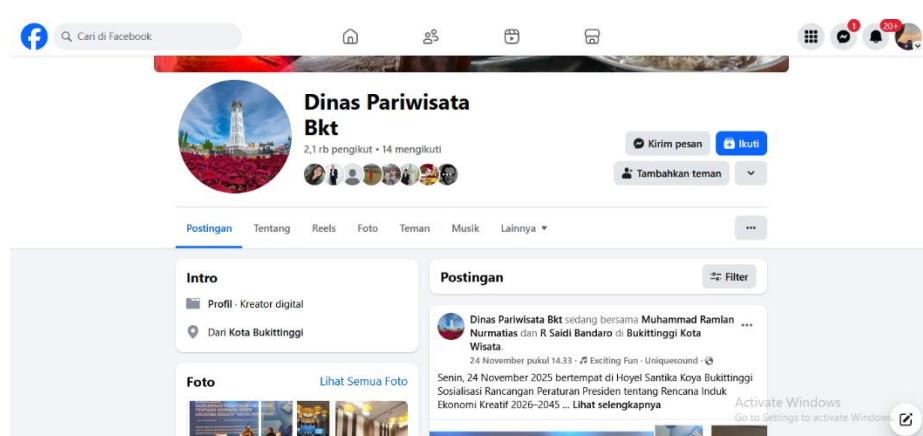


Image 4. Bukittinggi Tourism Facebook (Dinas Pariwisata Bkt)

These social media accounts are managed directly by the Tourism Office. They feature various promotional content including tourist attractions, local culinary

specialties, handicraft products, and information on tourism activities and events as information sources for visitors.

The Bukittinggi City Tourism Office has also initiated the development of a tourism QR Code system at various strategic points, built an e-UMKM portal as a promotional medium for local products, and organized digital marketing training for Tourism Awareness Groups (Pokdarwis) to improve technology-based tourism promotion capacity.

Interview results with the Head of Tourism Marketing and Creative Economy reinforce that Bukittinggi City has made efforts to implement the smart tourism concept integrated with the values of Sapta Pesona as the foundation of destination management. This approach not only focuses on the use of digital technology but also emphasizes the importance of hospitality, security, and cleanliness as components of intelligent tourism experiences.

However, the implementation of the concept still faces challenges in terms of the effectiveness of disseminating digital information to tourists. Research findings reveal that information regarding digital tourism media is still not widely known by visitors. One tourist stated that they were not familiar with the existence of the website visitbukittinggi.id or the official social media accounts of the Tourism Office. This indicates that digital promotion and publication need to be strengthened so that the dissemination of information can reach a wider audience and be more easily accessed by tourists.

Previous research shows that the successful implementation of smart tourism is strongly influenced by technology readiness, digital governance, and the level of adoption among communities and tourists. Lee, Hunter, & Chung (2020) explain that the concept of a smart tourism city requires an integrated digital ecosystem between the government, the industrial sector, and users, including the provision of real-time data, navigation systems, and tourism services based on IoT. This study emphasizes that tourist cities without strong digital system integration will find it difficult to create smart tourism experiences. In the context of Bukittinggi, these findings are relevant because digitalization is still focused on websites and social media and has not reached data integration or sensor-based services.

Research by Wang et al. (2022) in China shows that smart tourism development becomes effective when the government provides a centralized tourism information system connected to mobile applications, social media, and digital business platforms. China is successful because it offers a single tourism data hub that allows tourists to access information, purchase tickets, and provide reviews. Conversely, Bukittinggi City still manages information separately and does not yet have an integrated tourism information system.

## **Evaluation of the Four Dimensions of Smart Tourism**

### **Informativeness (Information Completeness):**

This dimension assesses the extent to which the platform is able to provide useful, complete, and relevant tourism information for visitors. The tourism website visitbukittinggi.id is considered sufficiently informative as it includes various data related to tourist attractions, historical information, location maps, event schedules, as well as information on culinary attractions and the creative economy. Multimedia content such as photos and videos also enriches the user experience in getting to know the attractions of Bukittinggi City.

However, the results of an interview with one tourist showed that the information presented on the site often focuses more on activities or agendas of the Tourism Office, rather than introducing destinations, traditional culinary delights, or

available tour packages. This indicates that although the informativeness aspect is present, the scope of the content has not fully met the overall information needs of tourists.



Image 5. Content of Instagram @disparbukittinggi

Based on the content display in Image 5, it appears that posts from the Instagram account @disparbukittinggi are mostly filled with information about activities, events, or agendas organized by the Tourism Office. The visuals tend to promote official events, activity reports, and publications of local government programs.

However, the image also shows that content directly oriented toward tourists' needs—such as recommendations for tourist spots, ticket prices, operating hours, local culinary guide, photo spots, or available tour packages—is still very limited. This indicates that the information channel is not yet fully optimized as a destination promotion media that is informative and user-friendly for tourists.

As a comparison, Yogyakarta developed the Visiting Jogja application, which provides comprehensive tourism information (including weather forecasts and cashless ticket booking) (Rimapradesi & Surwadono, 2022). The application effectively disseminates tourism information and has even increased tourist visits to Yogyakarta (Pangestu & Atmojo, 2024). Bukittinggi can adopt similar strategies by adding more diverse content (e.g., paid tour packages, thematic tours, interactive maps) and ensuring that all information is updated regularly. The development of features such as virtual tours (360°) or integration between social media and the official portal could also improve information completeness.

### Accessibility:

This dimension relates to the ease with which tourists can access tourism services anytime and anywhere. As a public site, visitbukittinggi.id can be accessed both through mobile devices and computers. However, the effectiveness of its use heavily depends on the availability of information technology infrastructure. Based on BPS data and media reports, some tourist areas outside Java, including West Sumatra, still face limitations in stable internet networks, causing tourists in the field to experience difficulties when accessing digital sites. This condition becomes a real obstacle in applying smart tourism, which depends on high connectivity.

This obstacle is consistent with findings that the website visitbukittinggi.id still faces issues regarding access speed. One tourist revealed that the site often requires a long loading time when first opened, reducing convenience for users seeking information on destinations, accommodation, or tourism events. Technical issues like these show that although the website is a step forward in tourism digitalization, its performance and user experience still need improvement to support smart tourism more effectively.

Even though regulations and new facilities exist, the implementation of smart tourism in Bukittinggi still faces several challenges. Uneven ICT infrastructure—including internet availability in some tourist areas—and technical disturbances such as weak signal and slow server access become major issues in executing tourism digitalization. In addition, digital literacy among managers and local communities remains low, hindering the optimization of digital platforms.

For example, Yogyakarta optimized the Visiting Jogja application to ensure high accessibility for smartphone users (Pangestu & Atmojo, 2024), while Bali has initiated the Bali Digital Island program, expanding digital networks and non-cash payments. To improve accessibility, Bukittinggi must continue developing IT infrastructure (public Wi-Fi, cellular networks) and improve the performance of its tourism website to ensure fast information retrieval.

### Interactivity:

This dimension emphasizes the ability of digital platforms to respond to users and support two-way communication.

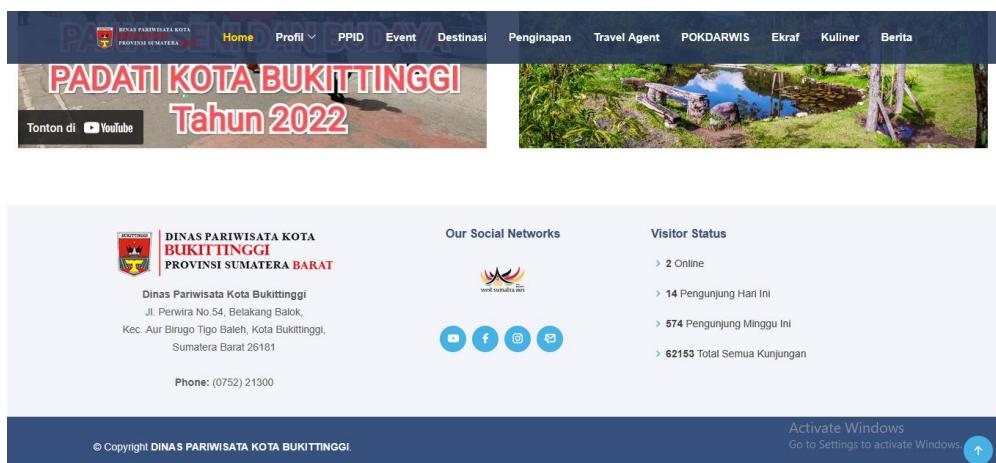


Image 6. Lower Section of visitbukittinggi.id Website

Source: visitbukittinggi.id (2025)

Based on observations, the portal visitbukittinggi.id still lacks interactive features such as discussion forums, live chat, or user review sections. Most of its content is passive and one-directional. This is also supported by interview results with tourists, who mentioned that Bukittinggi's digital tourism media do not provide space for tourists to give feedback or interact directly with destination managers or the Tourism Office. The absence of interactive features makes user experience less dynamic, reducing the level of tourist engagement in the digital tourism ecosystem.

**The Role of Interactivity and Two-Way Communication.** Interactivity is recognized as an essential element in smart tourism because it creates effective two-way communication between destination managers and tourists. Zhang et al. (2022) emphasize that the higher the level of interactivity on digital platforms, the more likely tourists feel engaged and obtain satisfying experiences. In this context, the availability of features such as comment sections, digital customer service, or AI-based chatbots becomes an indicator of a destination's readiness to adopt smart tourism principles.

For example, it was once stated that in 2017 the Acting Mayor launched the "Bukittinggi Smart" application which provided the KLIK (City Information Report) complaint service and instant messaging features between users, although the application focused more on general city services rather than the tourism sector. The experience of the "Bukittinggi Smart" app can serve as a lesson for developing tourism platforms. Even though it was not designed specifically for tourism, its reporting and

communication features show that interactive services can enhance user engagement. If such concepts were applied to tourism media, features like tourism issue reporting or live chat with officers could help improve tourism services and visitor experience.

Meanwhile, Yogyakarta has proven the effectiveness of interactivity through the Visiting Jogja application, which successfully delivers information and encourages tourist responses (reflected in increased visits) (Pangestu & Atmojo, 2024). Bali also utilizes interactive technology, such as the We Love Bali application, which integrates health and safety information (CHSE) and provides digital training for tourism businesses (Rahayu et al., 2025). Following this model, Bukittinggi needs to improve its digital interactivity through more responsive and participatory platforms.

### Personalization:

This dimension measures the extent to which the platform can adjust information based on user needs or preferences. At present, the presentation of information on the portal [visitbukittinggi.id](http://visitbukittinggi.id) remains general and has not yet implemented a destination recommendation system, personalized travel routes, or an interface that adapts to user profiles.

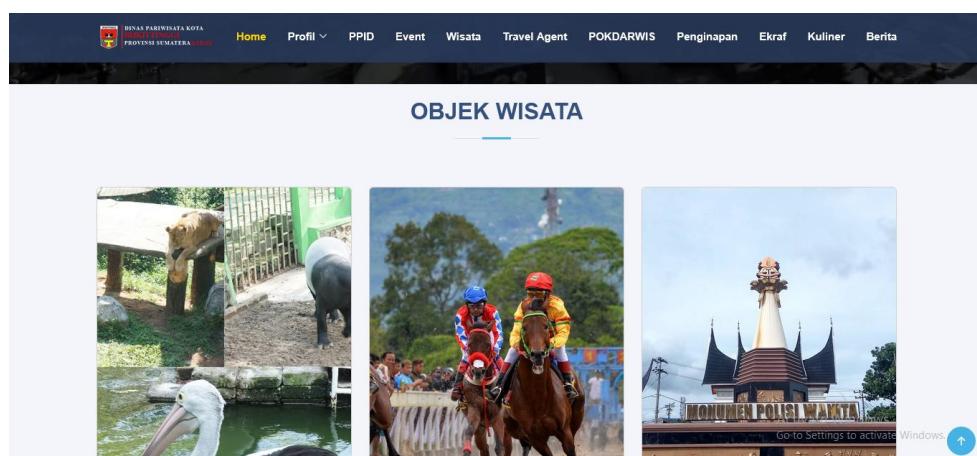


Image 7. Display of visitbukittinggi.id Website

The platform [visitbukittinggi.id](http://visitbukittinggi.id) currently presents information in a uniform format for all users, without any features capable of automatically providing destination recommendations, personalized travel routes, or an interface that adjusts to user profiles. This results in a digital tourist experience that is uniform and less personal. In the context of smart tourism implementation, this personalization aspect is important to develop because it can increase user satisfaction, strengthen destination image, and encourage tourists to return through digital experiences that are more relevant to individual interests.

For example, several smart destinations around the world use recommendation systems and artificial intelligence to adjust content based on user behavior. Bukittinggi could develop such features, such as recommendation modules for travel routes or event notifications relevant to a user's visit history or interests. Social media optimization can also be directed toward personalization—for example, sending promotional content on traditional culinary attractions to users interested in culture, or family tour packages to those traveling with children. By improving personalization, Bukittinggi can create a more engaging digital experience and increase visitor loyalty.

## CONCLUSION

The implementation of the smart tourism concept in Bukittinggi City has shown progress through various digitalization efforts, such as the development of the official website visitbukittinggi.id, the use of social media, the application of QR Codes, and digital training for tourism actors. These steps represent a concrete commitment from the local government to build technology-based tourism. Based on the four dimensions of smart tourism— informativeness, accessibility, interactivity, and personalization—it can be concluded that Bukittinggi City has fulfilled the aspects of informativeness and accessibility fairly well, but still requires improvement in interactivity and personalization so that tourism services become more participatory and aligned with tourist needs.

Although there has been progress, this study finds several obstacles, including limited digital infrastructure, slow website access speed, lack of interactive features, and low technological literacy among tourism actors. Therefore, it is recommended that the government strengthen information technology infrastructure, update website content regularly, add multilingual and interactive features, and develop recommendation systems based on tourist preferences. Collaboration between the government, MSME actors, and the local community is required so that the implementation of smart tourism can run optimally and support the realization of sustainable tourism digitalization in Bukittinggi City.

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