

Mapping Tourist Attractions and Analyzing Travel Patterns in Jembrana Regency, Bali, Indonesia

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Abstract: Bali Province is one of Indonesia's leading tourism regions; however, empirical studies examining the spatial distribution of tourist attractions and tourist travel patterns at the regency scale remain limited, particularly in peripheral areas such as Jembrana Regency. This study addresses this gap by mapping the spatial distribution of tourist attractions and analyzing tourist travel patterns in Jembrana Regency. A spatial/GIS-based approach was employed by integrating secondary data from official tourism documents with field surveys, followed by geographic plotting and clustering based on administrative boundaries, accessibility, and spatial proximity. Tourist attractions were classified into four clusters: East (Pekutatan District), Central-East (Mendoyo District), Central-West (Jembrana District), and West (Negara and Melaya Districts). Tourist travel patterns were analyzed using observations, interviews, and Focus Group Discussions (FGDs), focusing on movement flows, travel routes, and visitation sequences. Destinations with high visitor numbers, strategic locations, and adequate amenities were identified as tourism hubs, including Medewi Beach, Pelataran Rambut Siwi, Perancak Village, Gilimanuk Bay, Blimbingsari Tourism Village, and Candikusuma Beach. The Denpasar–Gilimanuk road emerges as the primary corridor shaping accessibility and inter-cluster tourist mobility. The findings reveal that tourist movements follow structured spatial patterns influenced by accessibility, destination hierarchy, and geographic configuration. These results highlight the importance of integrated spatial planning, infrastructure enhancement, targeted destination promotion, and community capacity development to support balanced and sustainable tourism development in Jembrana Regency.

Keywords: Bali; Jembrana Regency; Mapping; Travel Patterns; Tourist Attractions.

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Introduction

Travel patterns refer to the movement patterns of tourists, whether individually or in groups, as they engage in tourism activities, including travel routes, chosen destinations, and how tourists interact with tourist attractions or visited destinations (Shende et al., 2023; Sivalingam et al., 2024). In recent decades, travel patterns have undergone significant transformations driven by key factors such as preferences, tourist destinations, accessibility, globalization, the development of information technology, lifestyle changes, and the socio-economic conditions of tourists (Andani et al., 2024; Hughes et al., 2015; Muchlisin et al., 2024). Generally, travel patterns are not static but dynamic, changing over time as tourist preferences and behaviors evolve in how they plan and undertake their travels (Dantsuji et al., 2023).

One of the biggest changes in travel patterns is the access to information through the internet. In this digital age, tourists have greater ease in searching for and booking tour packages, transportation tickets, and accommodations through online platforms. The rapid development of technology allows tourists to plan their trips more flexibly, thanks to online applications and destination reviews that can be accessed directly (Hughes et al., 2015; Parvaneh et al., 2011; Shende et al., 2023). This pattern contrasts with the past when tourists relied more heavily on travel agents and information from brochures or tour guides. Now, tourists tend to be more independent in planning and organizing their trips, which is known as the "do-it-yourself" (DIY) travel phenomenon (Kagerbauer et al., 2024; Lavoie et al., 2024). These advancements in technology and information have brought about a revolution in the tourism industry, significantly

influencing tourist behavior (Zhang et al., 2023). Offline travel information used to be limited, rigid, and time-consuming to obtain, making travel planning more difficult and less flexible (Zhang et al., 2023).

Various online platforms have emerged, causing shifts in travel patterns. For instance, tourists can now easily book their trips. The emergence of travel platforms like Klook, AirBnB, Traveloka, Booking.com, Agoda, and others has significantly transformed travel patterns worldwide (Birenboim et al., 2023; Chang et al., 2023; Perelygina et al., 2022). These platforms offer tourists ease in planning, booking, and managing their trips independently and efficiently. For example, with platforms like Klook, tourists can easily book tickets for attractions, tours, and local activities at various destinations. Similarly, AirBnB provides unique and private accommodation options, often offering a more authentic experience for tourists. These platforms allow tourists to compare prices and availability for flights, hotels, and other services across global destinations (Perelygina et al., 2022).

Additionally, social media and visual content-sharing platforms like Instagram, YouTube, and TikTok have also transformed how tourists plan their travels (Shende et al., 2023). Tourists now often seek inspiration through visual content published by other travelers and influencers (Chen et al., 2022). Photos and videos showcasing the beauty of a destination or unique experiences often motivate tourists to visit those places (Yosmaoglu et al., 2023). These social media platforms also play a crucial role in promoting destinations that were previously less well-known, contributing to tourism trends that help make those destinations more recognized by tourists (Chen et al., 2022; Levi et al., 2024). With the ease of sharing experiences online, tourists also become part of a global community that influences each other's travel choices and preferences.

Behind this transformation in travel patterns, the topic of mapping travel patterns has long attracted the interest of researchers. For example, Shende et al. (2023) studied the changes in travel patterns during the pandemic on Twitter, while Chowdhury et al. (2025) conducted research on the unobserved heterogeneity factors in changing travel patterns in Florida. Similarly, Tang et al. (2024) studied the interesting topic of analyzing the repeated travel patterns of metro passengers, considering unexpected disruptions or barriers during travel. These studies highlight that travel patterns are an important research topic and should be explored at tourism destinations. Sardiana et al. (2021) used mapping to support tourism village promotion in Badung Regency, Bali, Indonesia. Recent studies in Bali further suggest that foreign market share is shaped by the choice of marketing channels and strategies (Ariana et al., 2025), while tourism village development increasingly incorporates sustainability considerations into local planning and management (Putra et al., 2023).

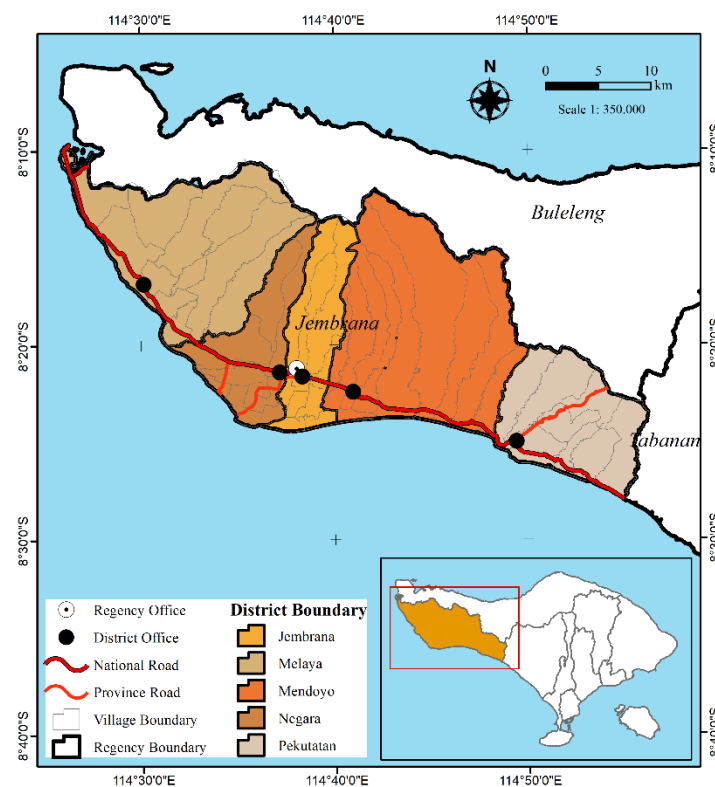
Following up on the general empirical condition and basic review of travel patterns, regarding the preferences of tourists visiting Bali, they tend to choose cultural tourism products combined with nature tourism (Ariana et al., 2023; Mihardja et al., 2023). This is in line with the history of Bali's tourism, which focuses on the utilization of culture and the preservation of nature. Bali is often referred to by beautiful names like the "Island of Heaven" and the "Island of the Gods." It is famous for its unique culture, lifestyle, traditions, arts, subak (irrigation system), temples, palaces, and social structure (Mihardja et al., 2023). As a region rich in both nature and culture, Bali offers various destinations with diverse attractions and tourist villages in each of its regencies and cities. These attractions are also found in one of its regencies, Jembrana. Jembrana is a potential transit and tourism destination. However, compared to other areas in Bali, Jembrana is still relatively quiet from the hustle and bustle of tourist activity, making its travel patterns more focused on tourists seeking a quieter, more authentic experience (authentic tourists). Tourists usually visit Jembrana as part of adventure tourism, ecotourism, and cultural journeys. This study will map the tourist attractions, and formulating travel patterns for tourists in Jembrana Regency.

Despite Bali's prominence as a global tourism destination, previous studies have a limited empirical investigation at the regency scale, particularly in peripheral regions such as Jembrana Regency. Existing research rarely integrates spatial mapping of tourist attractions with analyses of tourist travel patterns, resulting in an incomplete understanding of how spatial distribution, accessibility, and destination hierarchy interact to shape tourist mobility. Jembrana Regency represents a significant case due to its role as Bali's western gateway, its linear configuration

along the Denpasar–Gilimanuk corridor, and the spatially dispersed nature of its tourist attractions. Addressing this gap, the present study contributes to the body of knowledge by integrating a GIS-based spatial approach with empirical analysis of tourist travel patterns, offering insights into destination clustering, hub formation, and corridor-influenced mobility structures. Conceptually, this research is grounded in tourism spatial structure and mobility theories, which posit that the spatial distribution of attractions, mediated by accessibility and transportation networks, influences destination hierarchy and hub development, ultimately shaping tourist travel patterns. This integrated perspective provides a localized framework for understanding tourism dynamics in emerging and spatially fragmented destinations.

Methodology

The study on the travel patterns of tourists via land routes in Bali in 2024 focuses on the West Bali region, specifically in Jembrana Regency. Jembrana Regency is located at the western tip of Bali Island and is one of the 9 regencies/cities in Bali Province. The boundaries of Jembrana Regency are to the north by Buleleng Regency, to the south by the Indian Ocean, to the west by the Bali Strait, and to the east by Tabanan Regency. Geographically, Jembrana Regency is situated at coordinates $8^{\circ}09'30'' - 8^{\circ}28'02''$ South Latitude and $114^{\circ}25'53'' - 114^{\circ}56'38''$ East Longitude. The total area of Jembrana Regency is 84,180 hectares, or 14.96% of the total land area of Bali Island. The region includes mountains in the northern part, formed by the Peninguman Mountain Range, Mount Klatakan, Mount Bakungan, Mount Nyangkrut, Mount Sanggang, and Mount Batas. Administratively, Jembrana Regency consists of 5 districts: Pekutatan District, Mendoyo District, Jembrana District, Negara District, and Melaya District (Jembrana Regency Government, 2022). Figure 1 shows the location of the study.



(Source: Geospatial Information Agency of Indonesia, 2024)

Figure 1. Research Location

This study uses several data collection techniques, including document study, interviews, observations, mapping, and Focus Group Discussions (FGD). Document study is a data collection technique that involves obtaining data from documents, including primary and official sources, government documents, and other letters (Finnegan, 2006; Nasution, 2003). The credibility of

qualitative research results will be higher when documentation study is involved. The documents used as data sources in this study include activity reports from the Bali Provincial Tourism Office and data from the Jembrana Regency Tourism Office, as well as literature and data obtained online.

Two types of interviews are used in this research: in-depth (unstructured) interviews and structured interviews. In-depth interviews are informal interactions between the interviewer and the informant with the goal of obtaining more comprehensive and detailed data on the research topic. On the other hand, structured interviews are more formal as they are conducted according to predetermined guidelines. According to Creswell (2009), observation is a data collection technique in research when the researcher makes a direct visit to the research site to observe the behavior and activities of the community at the site. While at the research site, the researcher can make structured or semi-structured notes related to the activities observed. In this study, direct observations were made at each of the tourist attractions in Jembrana Regency. Interviews were conducted with 100 informants selected using purposive sampling. The selection criteria included: (1) tourists who had visited at least two tourist attractions within Jembrana Regency, (2) local community members involved in tourism-related activities, and (3) tourism stakeholders such as destination managers and government representatives. This approach ensured that informants possessed relevant knowledge and direct experience regarding tourist movement, destination characteristics, and accessibility conditions. The distribution of informants consisted of 50 tourists and 50 local residents.

This sample size was considered adequate for qualitative inquiry, as it allowed for the collection of diverse perspectives from key stakeholder groups directly involved in tourism activities (Gao et al., 2024; Pham et al., 2025). The number of informants was determined based on the principle of information richness rather than statistical representativeness, ensuring sufficient variation in experiences, travel behavior, and local knowledge.

Data collection continued until data saturation was achieved, defined as the point at which no new themes, patterns, or substantive insights emerged from subsequent interviews. Saturation was observed when responses became repetitive and additional informants did not contribute novel information (Naeem et al., 2024). This approach is consistent with established qualitative research standards, where sample adequacy is evaluated by thematic completeness and analytical depth rather than numerical thresholds (Lim, 2025).

Mapping in this research involving collecting, analyzing, and presenting information about tourist attractions to depict or describe the features within it. In the field, mapping were carried out using GPS technology to identify location of the tourist attraction and office stationery to record the location and uniqueness of tourist attractions. Location coordinate data from GPS will be downloaded and made into a map using Geographic Information System software.

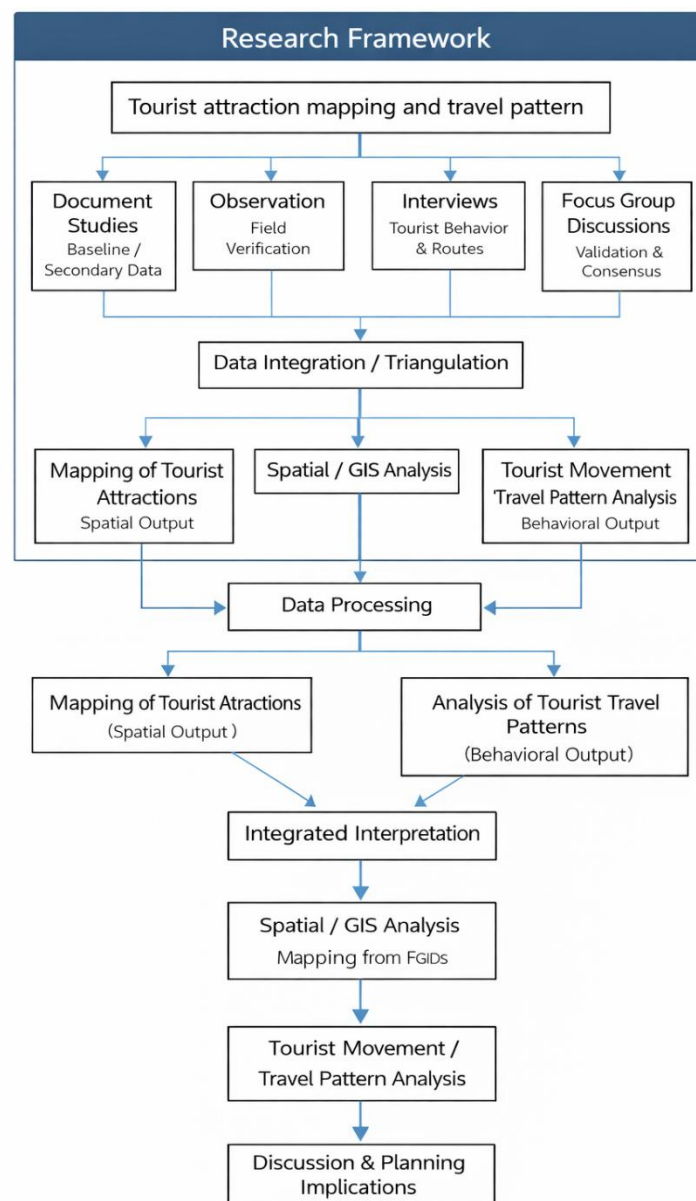
Focus Group Discussion (FGD) is a qualitative research method used to obtain interactive data from various sources with different backgrounds, allowing for more comprehensive data collection. The data collected provides a clearer and more directed understanding due to input from participants coming from diverse perspectives. FGD was conducted by inviting tourism stakeholders in Jembrana Regency, including government representatives, academics, entrepreneurs, tourism groups, and village tourism managers. The purpose of the FGD was to complement and confirm the results of the study.

Focus Group Discussions were conducted to validate spatial mapping results and to obtain collective insights into tourist travel behavior and destination linkages. A total of 50 participants were involved, representing local government agencies, tourism managers, community leaders, and tourism practitioners. The FGD sessions were held in Negara, the capital of Jembrana Regency in July, 2025. The discussions were guided by key themes, including: (1) validation of tourist attraction distribution and clustering, (2) identification of tourism hubs, (3) accessibility constraints and travel routes, and (4) perceived tourist movement patterns.

Moleong (2017) explains that data analysis begins with examining the available data, which is obtained from various methods including documentation, interviews, observations, and FGD. Subsequently, the data is reduced, or selected based on the research needs, while irrelevant data is excluded. Data analysis is performed through activities such as data reduction, data presentation, and drawing conclusions or verifying data. Two types of data analysis were used:

descriptive statistics and qualitative descriptive analysis. Descriptive statistics, also known as deductive statistics, are useful for data collection, organization, processing, presentation, and numerical data analysis. Statistical data can provide an orderly, concise, and clear picture of certain conditions, events, or phenomena, allowing for specific meanings or interpretations to be drawn (Husnul et al., 2020). This study used statistical data obtained from document studies related to visitor numbers, accommodation, restaurants, and tourism workforce in tourist destinations (DTW). Descriptive statistical analysis complements the qualitative descriptive analysis.

Creswell (2009) states that qualitative data analysis is carried out by the researcher concurrently with data collection, data interpretation, and writing the research report. This study uses a qualitative descriptive approach that aims to describe tourist attractions based on their current conditions. Tourist attractions are analyzed using the 4A concept (attraction, accessibility, accommodations, and ancillary). The DTW study is presented in a brief description focusing on the strengths and uniqueness of each tourist object, so that the findings can be used as a means of tourism promotion in Jembrana Regency. Figure 2 shows research diagram.



(Source: The Authors, 2024)

Figure 2. Research Diagram

The flowchart illustrates the integrated research framework employed to map tourist attractions and analyze tourist travel patterns in Jembrana Regency. The study begins with multi-method data collection consisting of document studies, field observations, interviews, and Focus Group Discussions (FGDs), each serving complementary roles in generating baseline data, field verification, behavioral insights, and stakeholder validation. The collected data are subsequently consolidated through a data integration and triangulation stage to ensure consistency and validity. The analytical process then proceeds through data processing, followed by two parallel yet interconnected analyses: spatial/GIS analysis for mapping the distribution and clustering of tourist attractions, and tourist movement analysis for identifying travel routes, flows, and visitation sequences. The outputs of both analyses are synthesized through integrated interpretation, enabling a comprehensive understanding of the spatial and behavioral dimensions of tourism. Finally, the findings are contextualized in the discussion stage to derive planning and development implications.

Results and Discussion

Results

The tourism condition in Jembrana Regency

Jembrana Regency consists of 5 districts: Pekutatan, Mendoyo, Jembrana, Negara, and Melaya, each of which has various tourist attractions and key tourism potential, including natural attractions, cultural attractions, artificial attractions, and tourist villages. There are 37 tourist attractions, consisting of 17 or 45.95% natural attractions, 5 or 13.51% cultural attractions, 8 or 21.62% artificial attractions, and 7 or 18.92% tourist villages.

In each district, the distribution of tourist attractions in Jembrana Regency is as follows:

- Pekutatan District has 8 natural tourist attractions and 2 tourist villages.
- Mendoyo District has 2 natural tourist attractions, 1 cultural tourist attraction, 4 artificial tourist attractions, and 1 tourist village.
- Jembrana District has 3 natural tourist attractions, 2 cultural tourist attractions, and 1 tourist village.
- Negara District has 1 natural tourist attraction and 1 cultural tourist attraction.
- Melaya District has 3 natural tourist attractions, 1 cultural tourist attraction, 4 artificial tourist attractions, and 3 tourist villages.

Table 1 shows the data on the number of tourist attractions in Jembrana Regency.

Table 1. Tourist Attraction in Jembrana Regency

District	Tourist Attraction						Total	Total (%)
	Nature	%	Cultural	%	Artificial and Tourism Village	%		
Pekutatan	8	21.63%	0	0.00%	2	5.40%	10	27.03%
Mendoyo	2	5.40%	1	2.70%	5	13.51%	8	21.62%
Jembrana	3	8.11%	2	5.40%	1	2.79%	6	16.22%
Negara	1	2.70%	1	2.70%	0	0.00%	2	5.40%
Melaya	3	8.11%	1	2.70%	7	18.91%	11	29.73%
Total	17	45.95%	5	13.51%	15	40.54%	37	100.00%

Source: Tourism Agency of Jembrana Regency and field surveys

Jembrana Regency is known for its unique characteristics and prominent tourist attractions, such as the Gilimanuk Harbor, which serves as the link between Bali Island and Java Island, and the iconic *Jalak Bali* (Bali Starling), which is a critically endangered bird native to the island of Bali especially in Jembrana Regency. Similarly, Medewi Beach has gained international recognition, often being used as a surfing competition venue by world-class surfers, making the name "Medewi

Beach" well-known and familiar to tourists. The Jegog and Mekepung arts are also original cultural icons of Jembrana, which are well-known and familiar to both local and international tourists.

In 2024, Jembrana successfully attracted a total of 266,189 tourists. Of these, 243,411 were domestic tourists and 22,778 were international tourists (Badan Pusat Statistik Kabupaten Jembrana, 2024). The five tourist attractions with the largest number of visits in Jembrana in 2023 were Baluk Rening Beach with 41,659 tourist visits, Perancak Tourist Village with 29,677 visits, Gelar River with 27,638 visits, Rambut Siwi Temple with 27,238 visits, and Yeh Leh Beach with 22,344 visits (Badan Pusat Statistik Kabupaten Jembrana, 2024). The tourist attractions in Jembrana Regency, which include natural attractions, cultural attractions, artificial attractions, and tourist villages, are spread across 5 districts. Figure 3 shows the map of tourist attractions in Jembrana Regency.



(Source: Author's Field Survey, 2024)

Figure 3. Map of Distribution of Tourist Attractions in Jembrana Regency

Tourist Travel Pattern Planning in Jembrana Regency

The travel patterns of tourists in Jembrana Regency will be analyzed by district. The development of travel patterns can enhance the efficiency of time for tourists, allowing them to visit more tourist attractions in Jembrana Regency. The tourist attractions in Jembrana Regency are grouped into four clusters: Eastern Cluster (Pekutatan District), Central-Eastern Cluster (Mendoyo District), Central-Western Cluster (Jembrana District), and Western Cluster (Negara and Melaya Districts). The travel pattern will refer to tourist attractions that serve as hubs or connecting points to other tourist attractions. A hub attraction is one that has developed or offers more complete facilities and accommodations. There are 6 tourist attractions and tourism villages that serve as hubs. These include Gilimanuk Bay, Blimbingsari Tourism Village, and Candikusuma Beach in Melaya District; Perancak Tourism Village in Jembrana District; Pelataran Rambut Siwi in Mendoyo District; and Medewi Beach in Pekutatan District.

The selection of the six tourism hubs was based on objective and measurable criteria to ensure analytical consistency. Destinations were classified as hubs if they demonstrated relatively higher visitation levels, greater availability of facilities and amenities (such as accommodations, restaurants, and parking areas), strong accessibility and connectivity to the Denpasar–Gilimanuk

arterial road, and a functional role as key nodes structuring tourist movements. In addition, spatial analysis indicated that these destinations occupy strategically central positions within their respective clusters. Based on these indicators, Medewi Beach, Pelataran Rambut Siwi, Perancak Tourism Village, Gilimanuk Bay, Blimbingsari Tourism Village, and Candikusuma Beach were identified as hubs, as they consistently exhibit superior accessibility, infrastructure support, and visitor concentration compared to surrounding attractions.

Gilimanuk Bay, located at the western tip of Bali and close to the Gilimanuk Ferry Port, offers a resting place after crossing from Java or for tourists preparing to head to Java. The natural beauty and mesmerizing underwater coral reefs provide a refreshing experience for tourists after a long journey. Additionally, tourists can enjoy the beauty of the small islands surrounding Gilimanuk Bay. For those arriving from Java through the Gilimanuk Port, this destination is an ideal starting point for visiting nearby tourist attractions and tourism villages.

Blimbingsari Village offers a unique blend of culture and beautiful nature. Blimbingsari Tourism Village also features the Nyiur Melambai Recreational Park for visitors traveling with family. The availability of homestay accommodations makes Blimbingsari Tourism Village a complete package for tourists. Candikusuma Beach is one of Jembrana's hidden gems, offering beautiful scenery and tranquility, making it an ideal spot for healing. In addition to its natural beauty and activities, Candikusuma Beach also provides homestay accommodations and other amenities. The beach also has a historical monument in the form of a triangular-shaped monument, which, according to local legend, was the site where a dagger was said to have emitted light.

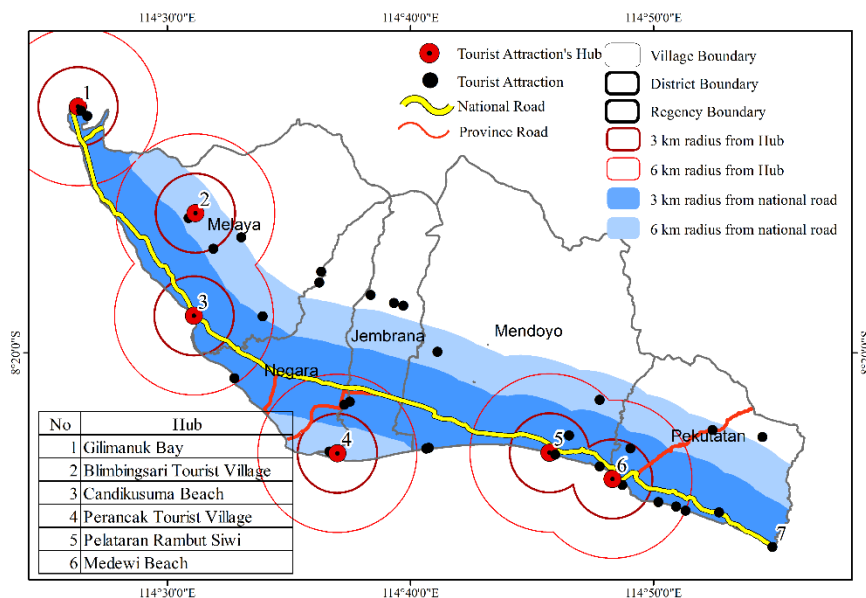
Perancak Tourism Village, as a hub, offers various attractions, such as a turtle conservation site, a recreational park, a motocross arena, and lush mangrove forests. Perancak is a well-known fishing village, famous for its black sand beach. It is also ideal for tourists who enjoy fishing activities due to its location at the river delta. As a hub, Perancak Tourism Village is equipped with villas, homestays, and other facilities. Pelataran Rambut Siwi is an open area located west of the Rambut Siwi Temple, frequently visited by tourists in the evening while waiting for the sunset at Rambut Siwi Beach. Many tourists choose to play in the sand or water at the beach's edge, and some enjoy swinging on the swings. The favorite visiting time for tourists is during weekends. On weekends, the area is bustling with tourists, as horseback riding and ATV activities are available on the beach. The Pelataran Rambut Siwi area has also been developed into a culinary center, with gazebos and stalls set up along the beachside.

Medewi Beach in Pekutatan District is the most popular beach among foreign tourists due to its perfect waves for surfing. Foreign tourists flock to Medewi Beach to try surfing. Located on the eastern side of Jembrana, the beach is strategically positioned for tourists arriving from Gilimanuk Port or from Denpasar City. Not only is it a stopover point, but Medewi Beach also provides accommodations such as homestays and villas, which tourists often use for overnight stays.

The tourist attractions in Jembrana Regency are interconnected by the Denpasar-Gilimanuk main road, which serves as the primary transportation route linking various districts and tourist destinations. This main road runs across the regency, connecting key areas and making it convenient for tourists to visit multiple attractions in a single trip. The Denpasar-Gilimanuk highway is crucial for accessing the various tourist attractions in Jembrana, especially since many of these destinations are scattered across the districts of Pekutatan, Mendoyo, Jembrana, Negara, and Melaya. The road provides direct access to popular attractions like Gilimanuk Bay, Blimbingsari Tourism Village, Candikusuma Beach, Perancak Tourism Village, Pelataran Rambut Siwi, and Medewi Beach.

The results show that most respondents expressed a preference for nature-based attractions, easy accessibility, and adequate facilities. Additionally, the Denpasar-Gilimanuk arterial road was consistently identified as the most frequently used travel route, serving as the primary corridor connecting major destinations. The ease of access provided by the Denpasar-Gilimanuk road makes it possible for tourists to create efficient travel routes and itineraries, allowing them to visit several tourist spots within a short time. The road not only facilitates transportation but also contributes to the overall tourism experience by providing scenic views and offering a smooth, well-maintained path that connects the westernmost part of Bali

(Gilimanuk) to the central and southern regions of the island. This interconnected road system helps promote tourism in Jembrana Regency by making it more accessible and appealing to visitors. Most of the tourist attractions in Jembrana Regency are within a radius of 3 km to 6 km from the hub and are within a radius of 3 km to 6 km from the Denpasar Gilimanuk highway. Only a few tourist attractions are located in the northern part of Jembrana Regency which are more difficult to reach from the highway and hub. Figure 3 shows a map of the accessibility of tourist attractions and tourism villages to the hubs and the Denpasar-Gilimanuk main road. Figure 4 shows distance of tourist attractions to the Denpasar-Gilimanuk Highway and Tourist Hub



(Source: Author's Field Survey, 2024)

Figure 4. Distance Of Tourist Attractions to the Denpasar-Gilimanuk Highway and Tourist Hub

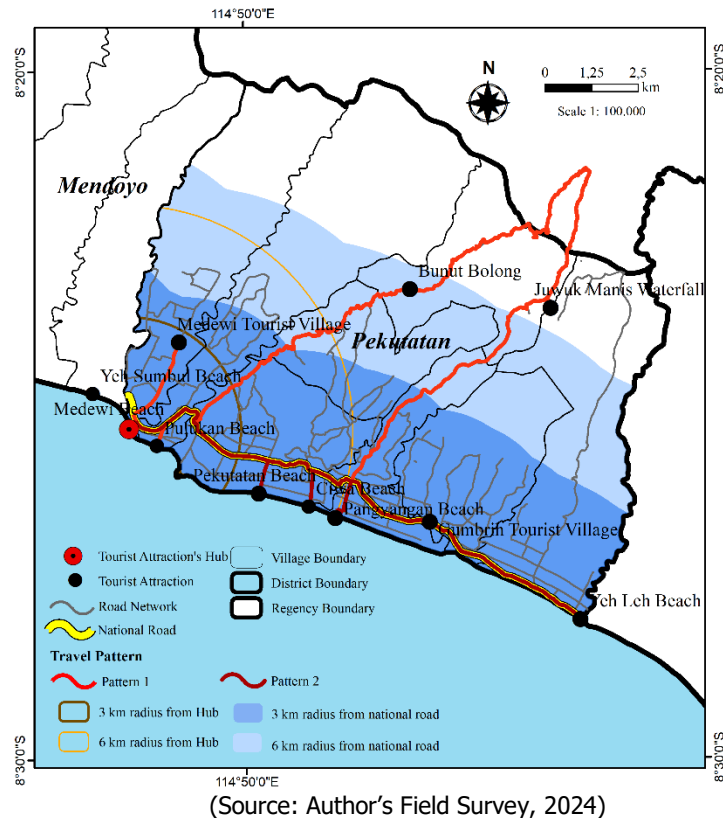
1. Tourist Travel Patterns in the Eastern Cluster (Pekutatan District)

The tourist attractions in Pekutatan District with high visitor numbers are Medewi Beach, Medewi Tourism Village, and Yeh Leh Beach. The tourist attractions with moderate visitor numbers are Pulukan Beach and Bunut Bolong. Meanwhile, the tourist attractions with low visitor numbers are Ciwa Beach, Pekutatan Beach, Pangyangan Beach, and Gumbrih Tourism Village. The hub tourist attraction is Medewi Beach. All the tourist attractions are within a 6 km radius of the hub and the Denpasar-Gilimanuk main road.

Medewi Beach, located south of the Denpasar-Gilimanuk main road, has a strategic location for tourists coming from Gilimanuk Harbor or Denpasar City. The accommodations at Medewi Beach are also well-established, providing convenience for tourists to stay before visiting other tourist attractions. Tourists visiting Pekutatan from the east can stay at Medewi Beach before heading to Medewi Tourism Village in the north, followed by Pulukan Beach, Bunut Bolong, and Juwuk Manis Waterfall. Tourists coming from Denpasar can rest or stop over at Yeh Leh Beach before proceeding to Gumbrih Tourism Village, Pangyangan Beach, Ciwa Beach, Pekutatan Beach, and finishing at Medewi Beach. Tourists coming from the west can first visit Medewi Beach before continuing to visit other tourist attractions, such as Pekutatan Beach, Ciwa Beach, Pangyangan Beach, Gumbrih Tourism Village, and stopping over at Yeh Leh Beach. After staying at Medewi Beach, tourists can head north to Medewi Tourism Village, Bunut Bolong, and Juwuk Manis Waterfall. Table 2 presents the travel patterns in Pekutatan District. Figure 5 displays a map of the tourist travel patterns in Pekutatan District.

Table 2. the travel patterns in Pekutatan District

Travel Pattern	Tourist Attraction
Pattern 1	Medewi Tourism Village - Medewi Beach - Pulukan Beach - Bunut Bolong - Juwuk Manis Waterfall or vice versa
Pattern 2	Yeh Leh Beach - Gumbrih Tourism Village - Pangyangan Beach - Ciwa Beach - Pekutatan Beach - Medewi Beach or vice versa

**Figure 5.** Map Of The Tourist Travel Patterns in Pekutatan District.

2. Tourist Travel Pattern for the Central-East Cluster (Mendoyo Subdistrict)

Mendoyo is a subdistrict in Jembrana Regency. It is located about 5.5 km from the capital of Jembrana Regency. A major tourist attraction that experiences high visitor traffic is the Rambut Siwi Plaza. Rambut Siwi Plaza is used as a hub to provide easy accessibility for tourists. It is a coastal area with restaurants and accommodations. From Rambut Siwi Plaza, all tourist destinations can be accessed within a 6 km radius from the hub and the main road from Denpasar to Gilimanuk.

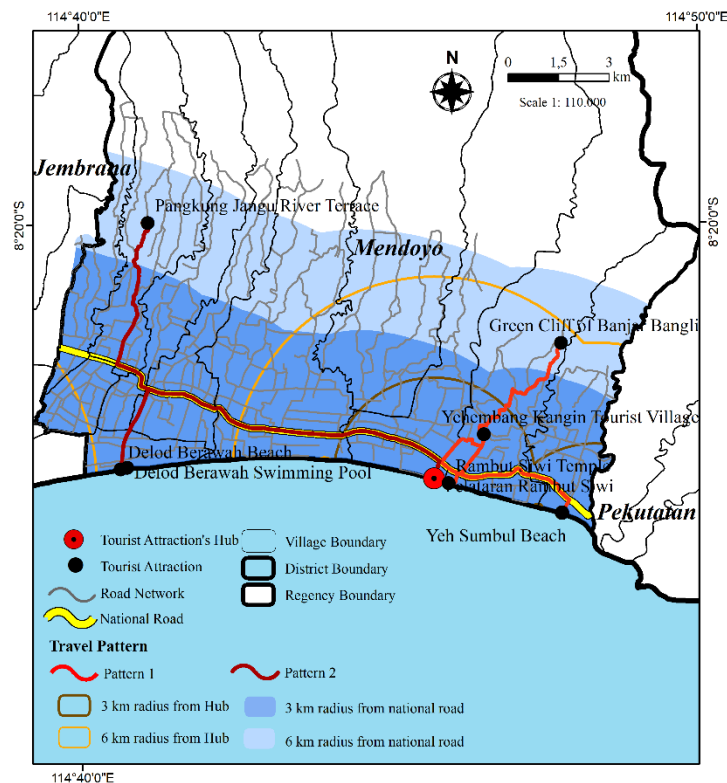
The travel pattern in Mendoyo Subdistrict is largely influenced by the shape of the administrative boundaries of the subdistrict. Mendoyo is elongated northward, so the distribution of tourist destinations and tourism villages is also spread out in that direction. Teras Pangkung Jangu and Green Cliff Banjar Bangli are located farthest from the main road access, requiring special attention to boost tourist visits.

There are two travel patterns that can be followed from Rambut Siwi Plaza. The first pattern is for tourists from Pelataran Rambut Siwi who wish to pray, they can visit Rambut Siwi Temple or go to Yeh Sumbul Beach, or vice versa. Then, from Rambut Siwi Temple, they can head north to visit Yeh Embang Kangin Tourism Village and Green Cliff Banjar Bangli. The second pattern allows tourists from Rambut Siwi Plaza to head west to visit Delod Berawah Beach and Delod Berawah Swimming Pool before heading north to visit Teras Pangkung Jangu. Table 3 shows the

travel patterns for tourists in Mendoyo Subdistrict. Figure 6 shows a map of the tourist travel patterns in Mendoyo Subdistrict.

Table 3. Tourist Travel Patterns in Mendoyo District

Travel Pattern	Tourist Attraction
Pattern 1	Yeh Sumbul Beach - Rambut Siwi Courtyard - Rambut Siwi Temple - Yeh Embang Kangin Tourism Village - Green Cliff of Banjar Bangli
Pattern 2	Pelataran Rambut Siwi - Delod Berawah Beach - Swimming Pool of Delod Berawah - Pangkung Jangu River Terrace



(Source: Author's Field Survey, 2024)

Figure 6. Map of Tourist Travel Patterns in Mendoyo District

3. Tourist Travel Pattern for the Central-West Cluster (Jembrana District)

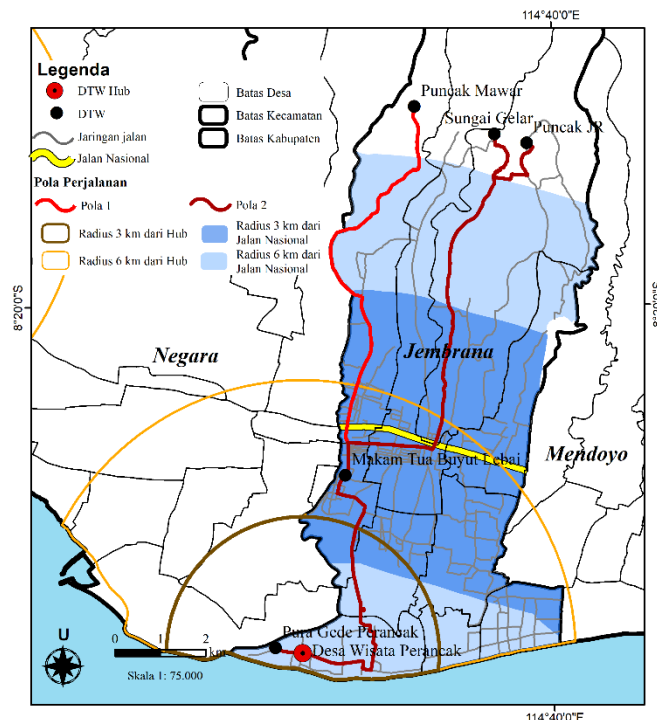
Like Mendoyo Subdistrict, Jembrana Subdistrict also has an elongated shape that stretches northward. The presence of tourist destinations such as Puncak Mawar, Sungai Gelar, and Puncak JR, which are located far from the main road (Denpasar - Gilimanuk), means that tourists will spend more travel time compared to other tourist destinations and villages in Jembrana Subdistrict. This situation requires good management and continuous promotion to attract tourists. Access to these three tourist destinations relies on regency roads, so the condition of these roads needs to be improved. In addition, the availability of amenities, infrastructure, and accommodations needs more attention.

Jembrana District's elongated shape towards the north causes the travel patterns to concentrate on reaching the tourist destinations located in the northern part of the subdistrict. The first travel pattern starts at Perancak Tourism Village as the hub, heading to Pura Gede Perancak or Makan Tua Buyut Lebai, or directly heading north to Puncak Mawar. The second travel pattern starts at Perancak Tourism Village heading to Pura Gede Perancak or Makan Tua Buyut Lebai, or directly heading north to Sungai Gelar and Puncak JR. Travel time effectiveness plays a significant role in the tourist travel pattern in Jembrana Subdistrict because of the considerable distance to the northern tourist destinations. The travel time from Perancak Tourism

Village to Rose Peak, Gelar River, or JR Peak is around 45 minutes, covering a distance of approximately 17 km, with hilly and mountainous terrain. Table 4 shows the tourist travel patterns in Jembrana Subdistrict. Figure 7 shows a map of the tourist travel patterns in Jembrana District.

Table 4. The Tourist Travel Patterns in Jembrana District.

Travel Pattern	Tourist Attraction
Pattern 1	Perancak Tourist Village - Pura Gede Perancak Temple / Ancient Tomb of Buyut Lebai – Rose Peak
Pattern 2	Perancak Tourism Village - Pura Gede Perancak Temple/ Ancien Tomb of Buyut Lebai - Gelar River - JR Peak



(Source: Author's Field Survey, 2024)

Figure 7. Map Of The Tourist Travel Patterns in Jembrana District.

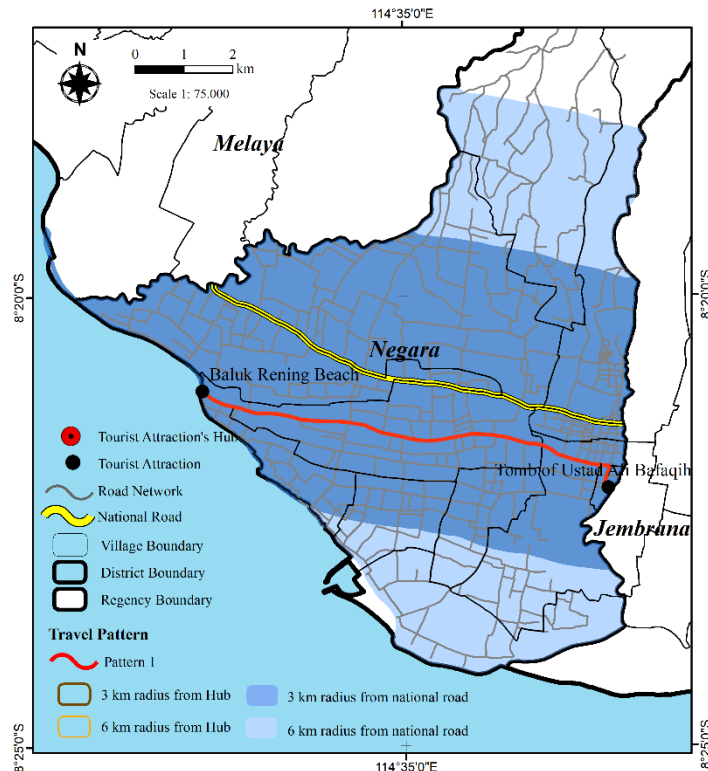
4. Tourist Travel Pattern for the Western Cluster (Negara Subdistrict and Melaya District)

Negara Subdistrict is the subdistrict with the fewest tourist destinations (DTW), having only two. The Ustad Ali Bafaqih Tomb is a site frequently visited by Muslim pilgrims. Meanwhile, Baluk Rening Beach is a natural tourist destination that is one of the best spots to witness the sunset, with its beautiful scenery and coconut trees swaying in the wind. Both tourist destinations can be reached via Arjuna Street, located south of the main road (Denpasar - Gilimanuk). With only two tourist destinations, Negara Subdistrict mainly serves as a stopover for tourists coming from Gilimanuk who wish to enjoy the beauty of the coastline. Pilgrims can visit the Ustad Ali Bafaqih Tomb and the Buyut Lebai Tomb in Jembrana Subdistrict. Figure 8 shows a map of the tourist travel patterns in Negara Subdistrict.

Melaya Subdistrict, the westernmost subdistrict in Jembrana Regency and on the island of Bali, has many advantages in attracting tourists. Its strategic location attracts tourists arriving from Java Island via Gilimanuk Harbor or those heading to Java Island. Tourists can rest and enjoy the natural beauty in Melaya Subdistrict. Melaya is also the subdistrict with the most tourist destinations and tourism villages, offering many travel pattern options.

There are three hubs in Melaya Subdistrict: Gilimanuk Bay, Blimbingsari Tourism Village, and Candikusuma Beach. With these three hubs, tourists can explore more of Melaya Subdistrict. The tourist destinations and tourism villages in Melaya have good accessibility, with only the

Manistutu Camping Ground and Benel Dam being located more than 6 km from the main road and the hubs.



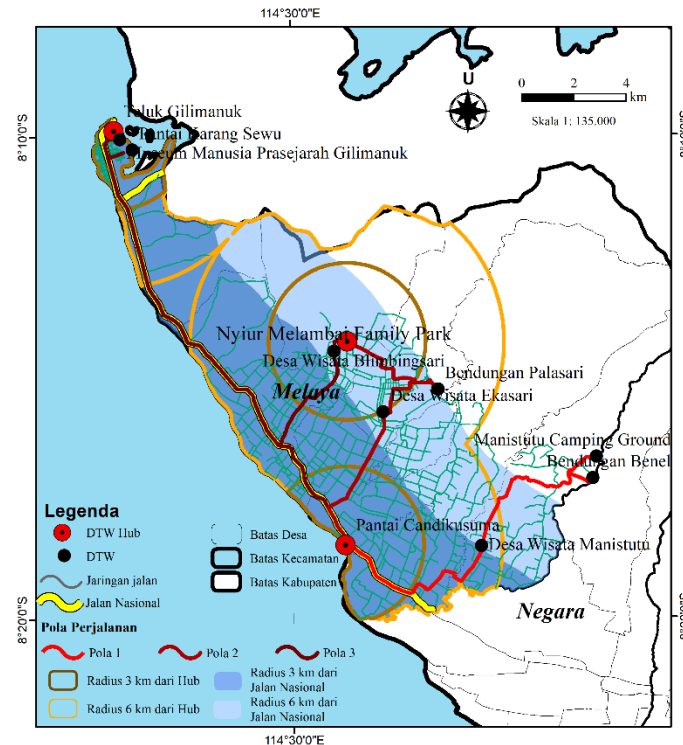
(Source: Author's Field Survey, 2024)

Figure 8. Tourist Travel Pattern Map in Negara District

Tourists coming from Denpasar can start their journey from the Candikusuma Beach hub, heading to Manistutu Tourism Village, then to Manistutu Camping Ground, and enjoy the beauty of Benel Dam. Alternatively, tourists from Denpasar can head from Candikusuma Beach to Ekasari Tourism Village, then enjoy the natural beauty of Palasari Dam and experience the culture and beauty of Blimbingsari Tourism Village, as well as visit Nyiur Melambai Family Park for family-friendly activities. Tourists arriving from Gilimanuk Harbor can take the reverse route, starting from Gilimanuk Bay, heading to Nyiur Melambai Family Park, then to Blimbingsari Tourism Village, followed by Palasari Dam, and enjoy the beauty of Ekasari Tourism Village before staying at Candikusuma Beach. Table 5 shows the tourist travel patterns in Melaya District. Figure 9 shows a map of the tourist travel patterns in Melaya District.

Table 5. Tourist Travel Pattern in Melaya District

Travel Pattern	Tourist Attraction
Pattern 1	Candikusuma Beach - Manistutu Tourism Village - Manistutu Camping Ground - Benel Dam or vice versa
Pattern 2	Candikusuma Beach - Ekasari Tourism Village - Palasari Dam - Blimbingsari Tourism Village - Nyiur Melambai Family Park or vice versa
Pattern 3	Gilimanuk Bay - Museum of Early Man - Karangsewu Beach - Belimbingsari Tourism Village - Nyiur Melambai Family Park - or vice versa



(Source: Author's Field Survey, 2024)

Figure 9. Map of The Tourist Travel Patterns in Melaya District.

Tourists arriving from Gilimanuk Harbor can also rest and enjoy the beauty of Gilimanuk Bay and the attractions around it. They can explore Karangsewu Beach and the Ancient Human Museum. Additionally, the beauty of the coral island and its flora is also fascinating to explore. After enjoying Gilimanuk Bay, tourists can continue to Blimbingsari Tourism Village to stay or proceed to Candikusuma Beach and its surrounding tourist destinations

Discussions

The findings of this study demonstrate that tourist travel patterns in Jembrana Regency are strongly shaped by spatial accessibility, functional hierarchy of destinations, and transportation corridors. The GIS-based mapping reveals a clustered distribution of tourist attractions, where destinations with high accessibility, adequate amenities, and strategic locations along the Denpasar–Gilimanuk main road function as tourism hubs. This finding aligns with the hub-and-spoke tourism model, which explains how core destinations act as nodes that distribute tourist flows to surrounding attractions (Kádár & Gede, 2021; Paulino et al., 2021; Paulino & Prats, 2024). The research findings also consistent with previous studies showing that spatial mapping of tourism potential supports sustainable destination management (e.g., remapping village-based attractions), while the role of the Denpasar–Gilimanuk corridor as a primary transportation axis significantly influences accessibility and travel patterns within tourism regions such as Jembrana Regency (Adinegara et al., 2025; Soimun et al., 2025).

Across all clusters, destinations located closer to the main arterial road attract higher visitor numbers, while attractions situated farther inland or requiring travel via secondary roads experience lower visitation. This pattern reflects the principle of distance decay in tourism, where visitation decreases as travel distance, time, and effort increase (Lee & Pennington-Gray, 2025; Zikirya et al., 2024). In elongated subdistricts such as Mendoyo and Jembrana, the northward spatial configuration produces linear travel patterns, as tourists prioritize time-efficient routes to reach inland destinations. Travel time effectiveness thus becomes a critical determinant of itinerary choice, consistent with previous studies on tourist mobility and spatial behavior (Bausch et al., 2024; Karayazi et al., 2024).

In the Western Cluster, the contrast between Negara and Melaya further illustrates functional differentiation within a regional tourism system. Negara acts primarily as a transit and stopover area with simple, purpose-driven visits, while Melaya functions as a gateway destination due to its proximity to Gilimanuk Harbor and the presence of multiple hubs. Gateway and transit tourism patterns have been widely documented in regions located at major entry points, where tourists combine resting, short visits, and multi-destination travel (Masiero et al., 2020; Suparman et al., 2023).

The findings confirm that tourist movement in Jembrana Regency is not random but follows structured spatial patterns influenced by infrastructure, destination hierarchy, and geographic configuration. These results highlight the importance of integrated spatial planning, improved accessibility to peripheral destinations, and strategic hub development to achieve more balanced and sustainable tourism growth.

The emergence of key tourism hubs such as Medewi Beach, Pelataran Rambut Siwi, and Gilimanuk Bay demonstrates the operation of a hub-and-spoke spatial model (Lew & McKercher, 2006). These hubs function as primary nodes that concentrate tourist activities due to superior accessibility, availability of amenities, and strategic locations. Consequently, tourist movements tend to radiate from these hubs toward nearby complementary attractions, producing structured and sequential travel patterns rather than random mobility. In elongated subdistricts such as Mendoyo and Jembrana, the linear spatial configuration further reinforces corridor-oriented travel behavior. Tourists prioritize time-efficient routes, especially when accessing inland attractions requiring longer travel times and secondary road networks. This confirms that travel time effectiveness is a critical determinant of tourist itinerary decisions (Bafail & Hanbazazah, 2025; de Sá et al., 2025).

The findings of this study are consistent with previous research emphasizing the role of accessibility and transport corridors in structuring tourist mobility. Similar hub-centered and corridor-driven travel patterns have been observed in other destinations, where highly accessible attractions function as primary nodes concentrating visitor flows (Soimun et al., 2025; Wang et al., 2025; Wardana et al., 2025). The dominance of main arterial routes influencing visitation intensity also aligns with studies conducted in regional and peripheral tourism areas (Ahn et al., 2023; Dalimunthe et al., 2020; Pedrosa et al., 2022; Song et al., 2024).

However, this study reveals distinct characteristics specific to Jembrana Regency. Unlike compact urban destinations where tourist movements tend to be multi-directional and dense (Shoval & Isaacson, 2007), Jembrana exhibits linear and sequential travel patterns shaped by elongated administrative configurations and spatially dispersed attractions. Additionally, the strong influence of gateway dynamics associated with Gilimanuk Harbor differentiates Jembrana from inland or single-core tourism systems. These differences highlight how geographic structure and regional positioning modify general tourist movement models.

The development of tourism in Jembrana Regency, Bali, although holding great potential, also faces several weaknesses that need to be addressed for the sector to reach its full potential. One of the biggest weaknesses in tourism development in Jembrana Regency is limited accessibility, especially in the northern areas which are bordered by mountains. Although the Denpasar - Gilimanuk Road is the main route, some tourist destinations farther from the main road require road infrastructure improvements to ease access for tourists. Remote and hilly roads are often difficult to reach, limiting the tourism potential in those areas.

The promotion and marketing as well as supporting facilities and infrastructure for tourism, such as accommodations, restaurants, and other services, are still limited in Jembrana Regency. Although there are some inns and dining places, their number is not sufficient to accommodate a surge in tourists, especially during peak seasons. The existing facilities also need to be improved to ensure tourists' comfort. Many tourists, both domestic and international, are not fully aware of the tourism potential in Jembrana, especially for more remote destinations. Most tourist destinations in Jembrana Regency are still focused on nature and beach tourism. While Bali is known for its natural beauty, Jembrana needs to develop more diverse tourism products, such as cultural tourism, culinary experiences, or ecotourism, to attract various segments of tourists. The lack of diversification can make Jembrana less competitive compared to other areas in Bali that offer a wider range of tourism options.

Many tourist destinations in Jembrana Regency experience higher visitor numbers during holidays or good weather conditions. This dependence creates instability in the tourism sector, as the number of tourists can fluctuate significantly between peak seasons and off-seasons. Therefore, efforts are needed to attract tourists throughout the year. One of the most important factor is limited skilled human resources. The quality of human resources in the tourism sector in Jembrana Regency still needs improvement. Many workers in the tourism sector lack sufficient skills or training to provide quality service to tourists. This can negatively affect the experience of visitors and impact the region's tourism image. The people in Jembrana Regency also not accompanied by attention to environmental preservation can have negative impacts. In some tourist areas in Jembrana Regency, waste management and the maintenance of natural beauty are still challenges. If not addressed, this could damage the natural attractions that are one of Jembrana's main draws.

The distribution of tourist attractions in Jembrana Regency is greatly influenced by the accessibility of the main Denpasar - Gilimanuk road and is limited by the mountainous structural terrain in the northern part. This condition creates an imbalance in the development and promotion of tourist destinations between the more accessible southern region and the more difficult-to-reach northern region. Based on the findings, several strategic recommendations are proposed:

1. Improve Accessibility to Peripheral Attractions. Upgrading regency and secondary roads connecting inland destinations (e.g., northern attractions) to reduce travel time barriers.
2. Strengthen Hub-Based Destination Management. Enhancing amenities, signage, and visitor services at identified hubs to optimize tourist distribution within clusters.
3. Develop Cluster-Integrated Tourism Packages. Designing thematic travel routes (coastal–nature, religious–cultural, rural–scenic) to encourage multi-destination visitation.
4. Targeted Promotion for Low-Visitation Destinations. Marketing strategies focusing on unique attributes of remote attractions to balance spatial visitation patterns.
5. Enhance Transport and Information Infrastructure. Providing clear route information, digital maps, and wayfinding systems.
6. Community Capacity Building. Supporting tourism villages through training, product development, and service quality improvement.

This study has several limitations. The study reflects limited numbers of sample and conditions during the specific study period, and seasonal variations in visitation patterns were not comprehensively examined. Future studies are encouraged to incorporate larger samples, longitudinal data, and advanced mobility tracking techniques.

Conclusions

This study reveals that tourist attractions in Jembrana Regency exhibit a clustered spatial structure consisting of four main tourism clusters: Eastern (Pekutatan District), Central-East (Mendoyo District), Central-West (Jembrana District), and Western (Negara and Melaya Districts), comprising a total of 37 tourist attractions. The spatial mapping confirms that destinations are unevenly distributed and strongly influenced by accessibility along the Denpasar–Gilimanuk arterial corridor. The analysis of tourist travel patterns shows that tourist movements are structured around six key hubs—Medewi Beach, Pelataran Rambut Siwi, Perancak Tourism Village, Gilimanuk Bay, Blimbingsari Tourism Village, and Candikusuma Beach—which function as primary nodes facilitating tourist circulation within and between clusters. These findings answer the research objectives by demonstrating that both the spatial distribution of attractions and accessibility conditions significantly shape tourist mobility.

This research contributes to the body of knowledge by integrating GIS-based spatial mapping with empirical travel pattern analysis at the regency scale, providing a localized understanding of cluster formation, hub dominance, and corridor-driven tourist flows in a peripheral tourism region. Practically, the findings highlight the importance of strengthening accessibility to peripheral destinations, enhancing amenities at hub locations, developing cluster-integrated tourism routes, and implementing targeted promotion strategies. Policy implications emphasize the need for integrated spatial tourism planning, infrastructure improvement, and

community capacity building to support balanced and sustainable tourism development in Jembrana Regency.

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References

- Adinegara, G. N. J., Sirna, I. K., & Nainggolan, G. (2025). Remapping the potential of Gumbrih Village for sustainable tourism management. *Journal of Applied Sciences in Travel and Hospitality*, 8(2), 126–136. <https://doi.org/10.31940/jasth.v8i2.126-136>
- Ahn, Y., Kim, K. B., & Kim, J. (2023). Characteristics and Temporal Trends of Regional Tourism Along the Border Areas. *Sustainability*, 15(4). <https://doi.org/10.3390/su15043111>
- Andani, I. G. A., Miharja, M., Rachmat, S., Desiana, R., & Mangkoesoebroto, G. (2024). Travel behaviour transformations in Indonesia: Assessing the long-term impact of COVID-19 on mobility patterns. *Case Studies on Transport Policy*, 17, 101267. <https://doi.org/https://doi.org/10.1016/j.cstp.2024.101267>
- Ariana, N., Putra, A. M., Sukana, M., & Panca P, W. A. (2023). The Happiness of European Tourists (HoET) in Bali: Tourism Services and Happiness Types. *E-Journal of Tourism*, 138. <https://doi.org/10.24922/eot.v10i1.106723>
- Ariana, N., Sutama, I. K., Pujaastawa, I. B. G., Wiranatha, A. S., Yudiastina, I. G. B. A., & Panca P, W. A. P. P. (2025). Tourism marketing: Channel, factor, and strategy for foreign market share in Badung Regency. *Journal of Applied Sciences in Travel and Hospitality*, 8(1), 1–23. <https://doi.org/10.31940/jasth.v8i1.1-23>
- Badan Pusat Statistik Kabupaten Jembrana. (2024). *Kabupaten Jembrana dalam Angka, 2024*.
- Bafail, O., & Hanbazazah, A. (2025). Optimizing Tour Guide Selection: A Best–Worst Scaled Assessment of Critical Performance Criteria for Enhanced Tour Quality. *Sustainability*, 17(9). <https://doi.org/10.3390/su17094213>
- Bausch, T., Peluso, A. M., Bursa, B., Mailer, M., & Amegah, M. L. (2024). Determinants Encouraging Tourists to Use Public Transport in Their Vacation Destination. *International Journal of Tourism Research*, 26(5), e2791. <https://doi.org/https://doi.org/10.1002/jtr.2791>
- Birenboim, A., Bulis, Y., & Omer, I. (2023). A typology of tourism mobility apps. *Tourism Management Perspectives*, 48, 101161. <https://doi.org/https://doi.org/10.1016/j.tmp.2023.101161>
- Chang, J. Y.-S., Cheah, J.-H., Lim, X.-J., & Morrison, A. M. (2023). One pie, many recipes: The role of artificial intelligence chatbots in influencing Malaysian solo traveler purchase intentions. *Tourism Management Perspectives*, 49, 101191. <https://doi.org/https://doi.org/10.1016/j.tmp.2023.101191>
- Chen, J., Becken, S., & Stantic, B. (2022). Harnessing social media to understand tourist travel patterns in multi-destinations. *Annals of Tourism Research Empirical Insights*, 3(2), 100079. <https://doi.org/https://doi.org/10.1016/j.annale.2022.100079>
- Chowdhury, A. Z., Titiloye, I., Sarker, M. A. A., & Jin, X. (2025). Exploring unobserved heterogeneity in ICT usage and travel pattern changes as the pandemic subsides: A quasi-longitudinal analysis in Florida. *International Journal of Transportation Science and Technology*, 17, 276–292. <https://doi.org/https://doi.org/10.1016/j.ijtst.2024.04.010>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches third edition*. SAGE Publications, Inc.
- Dalimunthe, D. Y., Valeriani, D., Hartini, F., & Wardhani, R. S. (2020). The Readiness of Supporting Infrastructure for Tourism Destination in Achieving Sustainable Tourism

- Development: Kesiapan Infrastruktur Pendukung pada Destinasi Wisata dalam Mewujudkan Sustainable Tourism Development. *Society*, 8(1), 217–233. <https://doi.org/10.33019/society.v8i1.149>
- Dantsuji, T., Sugishita, K., & Fukuda, D. (2023). Understanding changes in travel patterns during the COVID-19 outbreak in the three major metropolitan areas of Japan. *Transportation Research Part A: Policy and Practice*, 175, 103762. <https://doi.org/https://doi.org/10.1016/j.tra.2023.103762>
- de Sá, A. L. S., Lavieri, P. S., & Pawlak, J. (2025). Examining the determinants of travel time use and the transfer of activities into trips. *Transportation Research Part A: Policy and Practice*, 195, 104460. <https://doi.org/https://doi.org/10.1016/j.tra.2025.104460>
- Finnegan, R. (2006). *Using Documents*. In R. Sapsford & V. Jupp (Eds.) ((2nd Ed)). Sage Publications.
- Gao, J., Sakcharoen, T., Suwanteep, K., & Niyommaneerat, W. (2024). Stakeholder Perceptions of Sustainable Tourism Development: A Case Study in Haikou, China. *Sustainability*, 16(16). <https://doi.org/10.3390/su16166742>
- Hughes, K., Wang, J., & Shu, M. (2015). Exploring the travel patterns, preferences and recommendations of Chinese university students living in Australia. *Journal of Hospitality and Tourism Management*, 23, 12–22. <https://doi.org/https://doi.org/10.1016/j.jhtm.2015.03.002>
- Husnul, N. R. I., Prasetya, E. R., S. P., & Ajimat, & P. L. I. (2020). *Statistik Deskriptif*. Unpam Press.
- Kádár, B., & Gede, M. (2021). Tourism flows in large-scale destination systems. *Annals of Tourism Research*, 87, 103113. <https://doi.org/https://doi.org/10.1016/j.annals.2020.103113>
- Kagerbauer, M., Wilkes, G., von Behren, S., & Stark, J. (2024). Time Use during Activities and Trips — Potentials for Analyzing Future Travel and Activity Behavior. *Transportation Research Procedia*, 76, 222–232. <https://doi.org/https://doi.org/10.1016/j.trpro.2024.01.035>
- Karayazi, S. S., Dane, G., & Arentze, T. (2024). Analyzing the Influence of Visitor Types on Location Choices and Revisit Intentions in Urban Heritage Destinations. *ISPRS International Journal of Geo-Information*, 13(4). <https://doi.org/10.3390/ijgi13040115>
- Lavoie, B., Ong, F., & Habib, K. N. (2024). Relax on the way to work or work on the way to relax? Influences of vehicle interior on travel time perceptions in autonomous vehicles. *Transportation Research Part A: Policy and Practice*, 183, 104073. <https://doi.org/https://doi.org/10.1016/j.tra.2024.104073>
- Lee, S., & Pennington-Gray, L. (2025). Metatheorizing tourist flow at macro-level: Universal forces theory and herding among tourists. *Annals of Tourism Research*, 113, 103961. <https://doi.org/https://doi.org/10.1016/j.annals.2025.103961>
- Levi, S., Tesler, R., Findling, L., & Baron-Epel, O. (2024). Adolescent active travel and physical activity: Role of social media, norms and the environment. *Journal of Transport & Health*, 36, 101796. <https://doi.org/https://doi.org/10.1016/j.jth.2024.101796>
- Lew, A., & McKercher, B. (2006). Modeling Tourist Movements: A Local Destination Analysis. *Annals of Tourism Research*, 33(2), 403–423. <https://doi.org/https://doi.org/10.1016/j.annals.2005.12.002>
- Lim, W. M. (2025). Sample Size in Qualitative Research: Moving from Data Saturation to Theoretical Saturation. *Journal of Global Marketing*, 1–11. <https://doi.org/10.1080/08911762.2025.2590757>
- Masiero, Lorenzo, Qiu, Richard T R, & Zoltan, Judit. (2020). Long-Haul Tourist Preferences for Stopover Destination Visits. *Journal of Travel Research*, 59(5), 811–827. <https://doi.org/10.1177/0047287519867143>
- Mihardja, E. J., Alisjahbana, S., Agustini, P. M., Sari, D. A. P., & Pardede, T. S. (2023). Forest wellness tourism destination branding for supporting disaster mitigation: A case of Batur UNESCO Global Geopark, Bali. *International Journal of Geoheritage and Parks*, 11(1), 169–181. <https://doi.org/https://doi.org/10.1016/j.ijgeop.2023.01.003>
- Moleong, L. J. (2017). *Metode Penelitian Kualitatif*. Penerbit PT Remaja Rosdakarya.

- Muchlisin, M., Soza-Parra, J., Susilo, Y. O., & Ettema, D. (2024). Unraveling the travel patterns of ride-hailing users: A latent class cluster analysis across income groups in Yogyakarta, Indonesia. *Travel Behaviour and Society*, 37, 100836. <https://doi.org/https://doi.org/10.1016/j.tbs.2024.100836>
- Naeem, Muhammad, Ozuem, Wilson, Howell, Kerry, & Ranfagni, Silvia. (2024). Demystification and Actualisation of Data Saturation in Qualitative Research Through Thematic Analysis. *International Journal of Qualitative Methods*, 23, 16094069241229776. <https://doi.org/10.1177/16094069241229777>
- Nasution, S. (2003). Metode Research (penelitian ilmiah). *Jakarta: Bumi Aksara*.
- Parvaneh, Z., Arentze, T., & Timmermans, H. (2011). A Simulation Model Assessing Impacts of Advanced Information and Communication Technologies on Activity-Travel Patterns. *Procedia - Social and Behavioral Sciences*, 20, 236–243. <https://doi.org/https://doi.org/10.1016/j.sbspro.2011.08.029>
- Paulino, I., & Prats, L. (2024). Reframing mountain destinations from the perspective of tourist mobility: hub-and-spoke travel patterns. *Current Issues in Tourism*, 27(12), 1898–1915. <https://doi.org/10.1080/13683500.2023.2214851>
- Paulino, I., Prats, L., & Domènech, A. (2021). Breaking Brands: New Boundaries in Rural Destinations. *Sustainability*, 13(17). <https://doi.org/10.3390/su13179921>
- Pedrosa, A., Martins, F., & Breda, Z. (2022). Tourism routes: a scoping review. In *European Journal of Tourism Research* (Vol. 32).
- Jembrana Regency Government. (2022). *Laporan Kinerja Instansi Pemerintah Kabupaten Jembrana Tahun 2022*. Pemerintah Kabupaten Jembrana.
- Perelygina, M., Kucukusta, D., & Law, R. (2022). Digital business model configurations in the travel industry. *Tourism Management*, 88, 104408. <https://doi.org/https://doi.org/10.1016/j.tourman.2021.104408>
- Pham, K., Andereck, K. L., & Vogt, C. A. (2025). Stakeholders' involvement in an evidence-based sustainable tourism plan. *Journal of Sustainable Tourism*, 33(4), 673–696. <https://doi.org/10.1080/09669582.2023.2259117>
- Putra, A. M., Wiranatha, A. S., Putra, I. N. D., Ariana, N., & Suryawardani, I. G. A. O. (2023). Tourism village development is reviewed from a sustainable aspect in Marga District, Tabanan Regency. *International Journal of Tourism and Hotel Management*, 5(2), 33–43. <https://doi.org/10.22271/27069583.2023.v5.i2a.77>
- Sardiana, I., Purnawan, N., Wiguna, P., Suyarto, R., & Kusmiyarti, T. (2021). Analysis of Spatial Data Infrastructure (SDI) to Support Tourism Village Promotion in Badung Regency, Bali, Indonesia. *Indonesian Journal of Geography*, 53(2), 179–184. <https://doi.org/https://doi.org/10.22146/ijg.52556>
- Shende, S., Bhaduri, E., & Goswami, A. K. (2023). Analyzing changes in travel patterns due to Covid-19 using Twitter data in India. *Case Studies on Transport Policy*, 12, 100992. <https://doi.org/https://doi.org/10.1016/j.cstp.2023.100992>
- Shoval, N., & Isaacson, M. (2007). Tracking tourists in the digital age. *Annals of Tourism Research*, 34(1), 141–159. <https://doi.org/https://doi.org/10.1016/j.annals.2006.07.007>
- Sivalingam, P., Asirvatham, D., Marjani, M., Syed Masood, J. A. I., Chakravarthy, N. S. K., Veerisetty, G., & Lestari, M. T. (2024). A review of travel behavioural pattern using GPS dataset: A systematic literature review. *Measurement: Sensors*, 32, 101031. <https://doi.org/https://doi.org/10.1016/j.measen.2024.101031>
- Soimun, A., Sadri, P. D. A., Navianti, D. R., & Fitri, S. N. (2025). The impact of traffic congestion on freight transport efficiency in a tourism corridor: A case study of the Denpasar–Gilimanuk road. *Journal of Applied Sciences in Travel and Hospitality*, 8(2), 177–198. <https://doi.org/10.31940/jasth.v8i2.177-198>
- Song, X., Du, L., & Wang, Z. (2024). Correlation Analysis of Urban Road Network Structure and Spatial Distribution of Tourism Service Facilities at Multi-Scales Based on Tourists' Travel Preferences. *Buildings*, 14(4). <https://doi.org/10.3390/buildings14040914>
- Suparman, N., Abdal, Hidayat, A., Effendi, A. D., & Septiadi, M. A. (2023). Integration of strategic planning and air connectivity in tourism development. *Corporate and Business Strategy Review*, 4(2), 184–196. <https://doi.org/10.22495/cbsrv4i2art17>

- Tang, Y., Jiang, Z., Zou, X., Liu, X., Zhang, Q., & Liao, S. (2024). Mining motif periodic frequent travel patterns of individual metro passengers considering uncertain disturbances. *International Journal of Transportation Science and Technology*, 15, 102–121. <https://doi.org/https://doi.org/10.1016/j.ijtst.2023.07.005>
- Wang, D., Harun, N. Z. B., & Ja`afar, N. H. B. (2025). Transport-Node-Based Performance Indicators and Tourism Infrastructure Strategies in Historic Cultural Districts. *Sustainability*, 17(23). <https://doi.org/10.3390/su172310621>
- Wardana, W. W., Haryanto, T., Jamil, I. R., Ismail, N. A., Heriqbaldi, U., Correa, E., Rohmah, W. N., & Ajija, S. R. (2025). Does improved accessibility translate into tourism growth? A difference-in-differences analysis of bridge infrastructure in Indonesia. *Annals of Tourism Research Empirical Insights*, 6(2), 100189. <https://doi.org/https://doi.org/10.1016/j.annale.2025.100189>
- Yosmaoglu, S., Diallo, D., Hecking, T., & Schengen, A. (2023). Refining agent-based travel demand models using social media data. *Transportation Research Procedia*, 72, 1161–1168. <https://doi.org/https://doi.org/10.1016/j.trpro.2023.11.573>
- Zhang, X., Yang, C., & Yuan, Q. (2023). A strategic analysis model of residents' travel demand for Shanghai 2035 under new technology. *International Journal of Sustainable Transportation*, 17(12), 1337–1355. <https://doi.org/10.1080/15568318.2023.2188498>
- Zikirya, B., Xing, Y., & Zhou, C. (2024). The Matching Relationship Between the Distribution Characteristics of High-Grade Tourist Attractions and Spatial Vitality in Xinjiang. *Sustainability*, 16(21). <https://doi.org/10.3390/su16219426>