

Identify Location Characteristics of Tourism Accommodation that are Influenced by e-Commerce Case Study: Lembang Tourism Area, Kab. West Bandung

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ABSTRACT

The presence of the Industrial Revolution 4.0, which is marked by the rapid development of the internet, has fundamentally changed the way humans live, work, and communicate with each other. This development has also influenced the development of the business of providing accommodation in tourist areas. The ease of obtaining information via an internet network that is connected to regional areas opens up opportunities for the public to market tourist accommodation through e-commerce accommodation. The Lembang tourist area is an area with high potential for the development of e-commerce accommodation, covering 25.64% of tourist attractions in West Bandung Regency. This research aims to determine trends and developments in the characteristics of business locations providing accommodation in the Lembang tourist area based on observations via digital platforms. Data was obtained using a spatial analysis method with two different functions. The classification function is used to review location characteristics in businesses providing accommodation based on road class. The neighborhood function is used to review location characteristics based on proximity to tourist centers. The data was then analyzed descriptively and qualitatively. The results of the research show that the development trend of e-commerce accommodation in accommodation provision businesses continues to grow from year to year. Observation results via digital platforms show that as many as 136 accommodation business units were incorporated into e-commerce accommodation in 2019 in the Lembang tourist area. The location characteristics of the business providing accommodation tend to be concentrated around tourist areas with a radius of 1 km from the tourist center. Judging from the characteristics of business locations providing accommodation on roads, it is known that 59% of business units are predominantly located on neighborhood roads, while 41% are on main roads. The ease of access offered by this digital platform influences the development of business providing accommodation and location on the road class but does not significantly affect the distance to tourist centers.



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1. Introduction

1.1 Industrial Revolution 4.0

Industrial revolution 4.0 is a trend in production processes based on digital technology that creates changes in all sectors of life and gives birth to the latest production techniques, which are able to increase productivity and efficiency in a sustainable manner [1]. A leading

multinational management consulting company, defines Industry 4.0 as an era of digitalization of the manufacturing sector with cyber-physical system technology that allows each element to interact with each other in a network [2]. Changes in the Industrial Revolution 4.0 are marked by the optimal use of information and communication technology as well as the latest technological developments such as the Internet of Things (IoT), big data, cloud computing, modeling, virtualization, and simulation. This revolution,

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which is also known as the digital revolution, is believed to be able to increase the efficiency of manufacturing industrial processes through unlimited connectivity and digitalization systems. Satya stated that changes occurring at this exponential speed will significantly impact a country's economic, political, business, and industrial sectors as part of the global village [3].

The application of the Industrial Revolution 4.0 in various sectors certainly raises various new challenges to be faced. Including the business and industrial sectors which require a paradigm shift to be able to keep up with current developments and technology. This paradigm change is important because to Buhr's statement in [4], stakeholders who are unable to respond to changes and adopt new business paradigms will be easily replaced by other competitors. Therefore, various companies in the business and industrial sectors in Indonesia are starting to compete to invest in various software and the latest application technology.

1.2 Development of the Tourism Sector

Tourism is a sector that makes a fairly high contribution to the economic level of a country, including Indonesia. Based on data from Indonesia Investments, the Indonesian tourism industry sector in 2018 managed to contribute 14% to Gross Domestic Product (GDP). Indonesia's tourism sector has also become one of the government's priority sectors for development. First, tourism has a direct impact on the economy, including job creation, income redistribution and strengthening the balance of payments. Tourist spending, as an alternative form of export, contributes in the form of foreign exchange earnings (balance of payments) and income derived from tourism expansion. Foreign exchange earnings from tourism can also be used to import capital goods to produce goods and services, which in turn causes economic growth. Second, the stimulation effect (induced effect) on certain product markets, the government sector, taxes and also the imitation effect on the community. One of the main benefits to local communities expected from tourism is its significant contribution to regional economy, especially increased income and new jobs in the region. Business people in the area of course benefit directly from tourist spending. As businesses pay workers and as businesses and workers spend their increased wealth, the local community as a whole benefits. So the money spent by tourists is new money in the regional economy, not previous wealth that is reused (recycled).

Tourism is increasingly being used as a tool for economic development by many third world countries, thereby

helping to create jobs and improve local infrastructure [5]. The development of tourism not only improves the community's economy, but also increases the economic value of the land where tourism is located. The existence of tourism in remote areas such as mountains and beaches can increase the economic value of land around tourist locations so that it can improve community welfare. The development of tourist accommodation in the form of hotels, restaurants and souvenir shops are some of the positive impacts on the community's economy after the existence of tourist areas.

Viewed from the perspective of implementing the Industrial Revolution 4.0, the development of digital systems has had a huge influence on the tourism sector. According to Hakim [6], this revolutionary era has had an impact on the emergence of digital transformation which is the cause of the birth of the tourism 4.0 trend. The presence of various tourism supporting platforms and applications in the form of e-commerce accommodation has caused changes in the growth and development process of the number of tourist accommodation. The role of digital marketing is very influential in bringing in tourism. Digital marketing in the industrial era 4.0 that can be applied is implementing E-tourism (IT enabled tourism / electronic tourism). E-Tourism is utilizing sophisticated information and communication technology to increase efficiency in the tourism sector, providing various tourism services to customers in the form of telematics and making tourism marketing more easily accessible. E-tourism in the era of revolution 4.0 is an influential reality in the world of tourism. Smart tourism does not only rely on technology, but also on the ability of human resources to use the latest technology to run business in promotional activities. The use of E-tourism helps managers provide visual images through digital access in a timely and effective manner globally.

1.3 Accommodation Provision Business

Tourism facilities are anything that complements and aims to facilitate the process of tourism activities to run smoothly. Accommodation in the form of temporary housing as a means of supporting tourism plays an important role in the continuity of tourism. Providing comprehensive information about tourist accommodation can increase tourist interest in visiting a tourist destination. The ease of obtaining information through a cyber network system that is connected without being limited by geographical area opens up great opportunities for marketing tourism accommodation through the business of providing accommodation.

In Law No. 10 of 2009 concerning Tourism, the business of providing accommodation is defined as the business of providing lodging services for tourists which is also equipped with other tourism services [7]. The business of providing accommodation is classified, among other things, into hotels, campsites, caravan stops, villas, and tourist lodges. In this research, the classification of accommodation-providing businesses is based on the groupings available on digital platforms, namely hotels, villas, homestays, guest houses, and resorts. This classification is an adaptation and combination of the description of the business owner providing accommodation on each digital platform with the classification of the Law.

1.4 Characteristics of Locations Providing Accommodation

Location is an important factor in developing accommodation provisions. Providing accommodation is highly dependent on effective strategic locations and attracting tourists to rent accommodation from providers [7]. The ease of obtaining information on tourist locations has a significant influence on travel interest.

The existence of tourism in a particular location can increase the economic value of that location. Biantoro and Ma'rif [8] in their study explained that tourist areas located on mountain coasts and remote areas that have natural beauty can be used as tourist attractions so that economic activities can develop and expand to these areas.

The availability of infrastructure and accessibility is one of the indicators in the characteristics of choosing a location for a business providing accommodation [9][10]. There are several variables in these two indicators, namely road networks, clean water, drainage networks, electricity, telecommunications, and others. Through data that can be obtained from the digital attribute analysis platform, the variables taken in this research are the road network variable in the infrastructure availability indicator, and the distance variable from the activity center in the accessibility indicator.

The road network variable in this case is related to the class of road where the business providing accommodation is located. According to Law No. 38 of 2004 concerning Roads, roads are divided into 4 types, namely arterial roads, collector roads, local roads, and environmental roads [10]. In this research, road classes are simplified into two groups, namely main roads and neighborhood roads. Main roads include arterial and collector roads, while neighborhood roads include other lower classes of roads.

The provision of accommodation on the main road network which is close to potential markets tends to be more dominant than the provision of accommodation on the neighborhood road network [11]. The existence of environmental roads as access to tourism accommodation is very important to make it easier for tourists to access and enjoy tourism activities.

The distance variable from the activity center in this case is related to the tourist activity center. A tourist activity center is a place that provides indoor and outdoor natural and artificial entertainment, attractions, shopping, and history related to the local area [12]. Accommodation provisions are not distributed randomly but are clustered with other accommodation provisions centered on tourist areas [7].

1.5 Research purposes

This research aims to determine the characteristics of business locations providing accommodation that have had a significant influence on the existence of e-commerce accommodation as a product of the Industrial Revolution 4.0. Location characteristics are reviewed based on the road network variable in the infrastructure availability indicator and the distance variable from the center of tourist activity in the accessibility indicator. In addition, development trends in accommodation provision and types of accommodation are also discussed in this research.

2. Method

2.1. Method of collecting data

Research data was collected through observations of businesses providing accommodation in the Lembang area using four digital platforms in the form of Airbnb, Agoda, Booking.com, and Trip.com. The coordinates of accommodation business units obtained in this observation area are then presented in a thematic map. A thematic map is a map that has a special function to convey specific information, in this case, the thematic map created aims to convey information related to the characteristic patterns of business locations providing accommodation in the Lembang area.

In addition to collecting data in the form of coordinates for the location of accommodation-providing businesses, specific data on accommodation-providing businesses were also reviewed in the form of type, road class, distance to tourist centers, and year of joining the digital platform.

2.2. Data analysis method

The data analysis method used is the spatial analysis method. Of the five types of classification of spatial analysis functions according to Aronoff in [13], 2 spatial analysis functions are used, namely the classification function and the neighborhood function. The classification function is to reclassify spatial data (or attributes) using certain criteria. Meanwhile, the neighborhood function produces new spatial data in the form of an area with a certain distance from the input spatial data. Point spatial data will produce data in the form of circles surrounding the central points.

The classification function is used to analyze the level of accessibility of businesses providing accommodation to street class, while the neighborhood function is used to analyze based on affordability to tourist centers. The results of this spatial analysis were then analyzed using qualitative descriptive methods. According to [14], the qualitative descriptive method aims to describe the phenomena that occur by paying more attention to the

characteristics, quality, and relationship of the research object with its surroundings. This method does not provide treatment or changes to variables but rather describes conditions and phenomena as they are.

3. Result and Discussion

3.1. General Description of the Lembang Tourist Area

The object of study in this research is the business of providing accommodation in the administrative area of Lembang District, West Bandung Regency. Lembang District administratively has an area of 95.56 km² with the boundaries of Subang Regency to the north, Bandung City and Cimahi City to the south, Cisarua District, Purwakarta Regency, and Cimahi City to the west, and Sumedang Regency to the east. Businesses providing accommodation that are the object of study in the Lembang Tourism Area are businesses that rent out room units and buildings with other supporting facilities which are managed by both residential owners and other management parties shows in Figure 1.

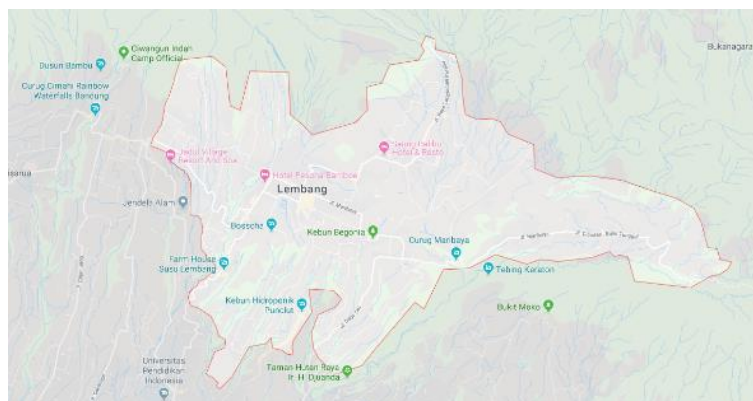


Figure 1. Map of the Lembang District area, West Bandung Regency (Source: <https://maps.google.com>)

3.2. Development of E-Commerce Trends in Accommodation Provision Businesses

The Industrial Revolution 4.0 era is marked by increased digital consumption. The tourist accommodation digital platform utilizes online social networks as a marketing medium. The existence of this digital platform is thought to be able to improve the tourist accommodation industry. The more mature the digital platform, the more convenience it will offer. This convenience is what attracts business people in the tourist accommodation sector, in particular, to join a digital platform.

Based on the results of the analysis, the number of accommodation-providing businesses joining digital platforms increases every year. In 2011 there were only 5

business units incorporated and this increased to 136 units in 2019. The number of businesses providing accommodation from 2011 to 2019 increased exponentially as shown in Figure 2. The number of accommodation businesses increasing exponentially shows the increasing e-commerce trend through digital platform media. The development of various digital platforms has also contributed to increasing the development of tourist accommodation in various tourist areas. The ease of obtaining information from various digital platforms supporting tourism is a special attraction for tourists to dig up information, compare prices from various digital platforms for the same tourist accommodation, and find accommodation that suits what tourists want with the right budget. Information that is easy to obtain from anywhere based on internet network

technology invites and increases the interest of tourists from various regions so that tourists are not only limited to local tourists, but also tourists from outside tourist areas and even foreign tourists.

This increasing trend indicates that the benefits felt by business actors are becoming greater. This usefulness is especially in the aspect of accessibility connecting business actors and potential consumers. Business people can easily carry out marketing with less capital. Prospective consumers can also easily search for various accommodation options that can be tailored to their needs. Other conveniences can be felt in transaction activities. The following is a graph of the development of the number of businesses providing accommodation based on the year they joined the digital platform.

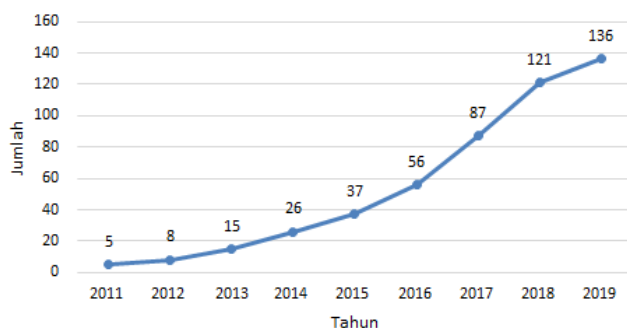


Figure 2. Development of the number of businesses providing accommodation based on the year they joined the digital platform in the Lembang District area, West Bandung Regency

3.3. Accommodation Provision Business

Businesses providing tourist accommodation that are developing in the Lembang tourist area are varied. From the results of observations in the field, data was obtained regarding the frequency distribution of various types of accommodation-providing businesses. The total business providing accommodation that has developed in the Lembang tourist area to date has registered in e-commerce accommodation reaching 136 units which are divided into guest houses, homestays, hotels, resorts, and villas. This tourist accommodation is spread across various areas in the Lembang tourist area. The functions and facilities offered by various types of tourist accommodation are also different so that tourists can choose tourist accommodation that suits their needs while traveling in the Lembang tourist area.

Based on observations, the dominant business providing accommodation in the Lembang tourist area is villas with a total of 57 units (42%). The business of providing accommodation in the form of hotels is dominantly developing in the Lembang tourist area with 30 units (22%)

registered as partners with digital platforms in developing and promoting their business. The next tourist accommodation facility that is dominantly developing in the Lembang tourist area is guest houses with a total of 28 units (20%). The business of providing accommodation in the form of homestays and resorts is less dominant in the Lembang tourist area with 12 units (9%) and 9 units (7%) respectively shows in **Figure 3**.

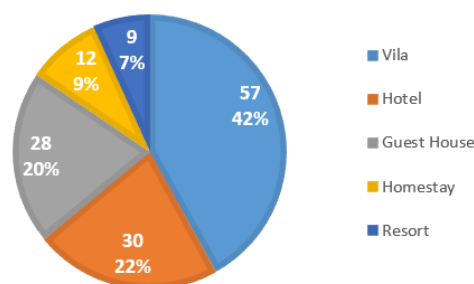


Figure 3. Percentage of businesses providing accommodation by type in the Lembang tourist area, West Bandung Regency

Villas dominate the development of the accommodation business in the Lembang tourist area. Villas are tourist accommodation facilities that, if managed privately, tend to be located in areas that are generally not easy to reach. Villas can be a single building or a collection of buildings that can be rented for both tourist activities and family gatherings. Villas have a character that tends to be private when compared to other tourist accommodation. Marketing of villas to the public also tends to be more limited through leaflets and websites available in cyberspace. The development of e-commerce accommodation makes it easier for villa owners to market their tourist accommodation facilities via the Internet network. This easy access to information has caused villas to expand even to areas that were previously considered less strategic due to their location being quite far from the road network in the Lembang tourist area. Spatial factors in the form of location are no longer an obstacle for accommodation providers to develop tourist accommodation in the form of villas. Private areas that are far from the crowds, even though they have quite long access, also have the potential to be developed as villas considering that the development of internet networks has really helped facilitate the promotion of villas through various digital platforms. So even though it is far from the crowds, information about villas can still be disseminated to various areas and can be easily found by tourists who need tourist accommodation in the form of villas.

The business of providing accommodation in the form of homestays and resorts is relatively low compared to other types that are developing in the Lembang tourist area.

Homestay is a tourist accommodation facility that is not only intended as tourist accommodation but also as a temporary residence for social activities and research. Meanwhile, the development of resort tourist accommodation facilities tends to be influenced by the tourist attractions offered rather than tourist accommodation. Resorts have a character that is closely tied to tourism so that resort development always coexists with tourist areas. The unique character of this resort is why tourist accommodation in the form of a resort cannot be separated from the tourist area.

The types of businesses providing accommodation as a whole tend to be spread evenly in various areas in the Lembang tourist area. These various types of accommodation businesses are more likely to develop around tourist areas with adequate access. The development of e-commerce accommodation in the Industrial Revolution 4.0 era has also influenced the equitable development of various types of accommodation businesses. Ease of access to information as a result of the development of the industrial revolution 4.0 has caused various types of tourist accommodation to develop without being bound by the spatial location of the tourist accommodation. The following is a picture of the location of the business providing accommodation based on type of residence in [Figure 4](#).

3.4. Characteristics of Accommodation Providing Business Locations based on Road Class

Before the use of digital platforms such as Airbnb, Airy Rooms, Agoda, and others, businesses providing accommodation located on main roads tended to be more common than businesses located on neighborhood roads. This is because the main road area is a more strategic area to be developed as a tourist accommodation area compared to the neighborhood road area. The ease of obtaining information about tourist accommodation in the main road area for tourists in the era before the industrial revolution 4.0 was the main reason why the main road area had a higher strategic value than the neighborhood road area. Supportive road infrastructure and affordable public transportation are also supporting reasons why main road areas are more favored to be developed as tourist accommodation areas compared to neighborhood road

areas. However, after the industrial revolution 4.0, geographical boundaries should no longer be an obstacle, so businesses located on neighborhood roads have the same marketing opportunities as businesses located on main roads.

Based on the results of data collection, there are 56 units (41%) of businesses providing accommodation located on main roads, and 80 units (59%) of businesses located on neighborhood roads, which can be seen in more detail in [Figure 5](#). The following is a diagram of location characteristics based on road class.

From this data, it is evident that the affordability of accommodation businesses no longer depends on the class of the road. This comparison of numbers which are not much different proves that the number of businesses providing accommodation on neighborhood roads rivals the number of businesses on main roads, which can be seen in [Figure 5](#).

The greater number of businesses providing accommodation on neighborhood roads indicates that accommodation business owners on neighborhood streets do more marketing than business owners on main roads. This can be caused by higher marketing urgency for business owners providing accommodation on neighborhood roads. Meanwhile, owners of businesses providing accommodation on main roads tend to find it easier to get tenants, so not all owners on main roads feel they need a digital platform as a promotional medium.

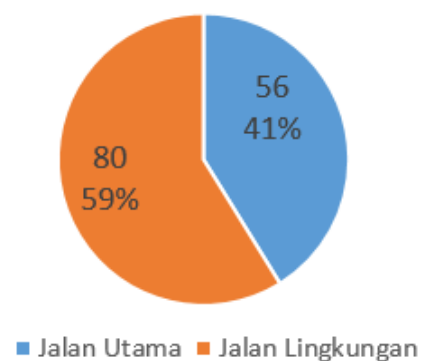


Figure 5. Percentage of businesses providing accommodation based on road class in the Lembang tourist area, West Bandung Regency

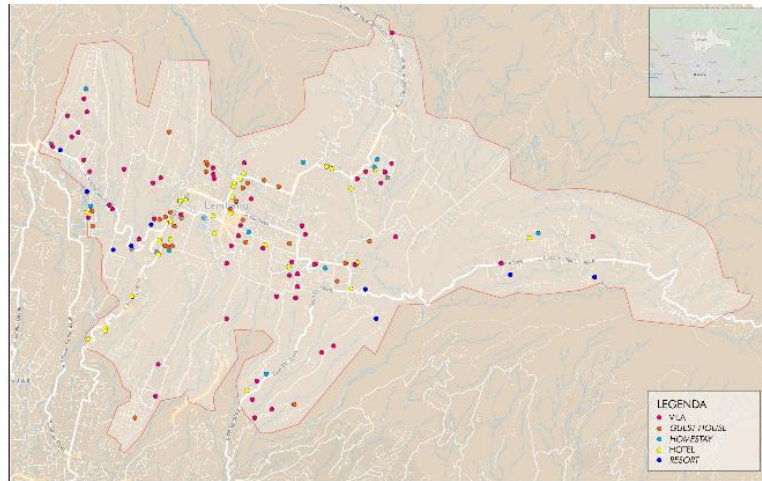


Figure 4. Map of accommodation business locations based on housing type in the Lembang District, West Bandung Regency

With the increasing popularity of digital platforms, accommodation business owners can more easily reach the potential market for renters of their buildings. Based on Yang's theory [15], accommodation businesses on main roads tend to outperform their competitors on environmental roads, which has become less relevant with the Industrial Revolution 4.0. The following is a picture of the characteristics of locations providing accommodation based on road class shows in Figure 6. However, the trend in the development of tourist accommodation areas is no longer centered on the main road area but is also

developing in the neighborhood road area. This shows a tendency for changes in the development trend of tourist accommodation areas caused by the development of the industrial revolution 4.0. The ease of promotion and actualization of tourist accommodation providers through various digital platforms has caused the spatial perspective on the tourist accommodation area to develop. Even areas that are not easily accessible have the opportunity to be developed into tourist accommodation areas that have much higher privacy than tourist accommodation areas on main roads which tend to be busy.

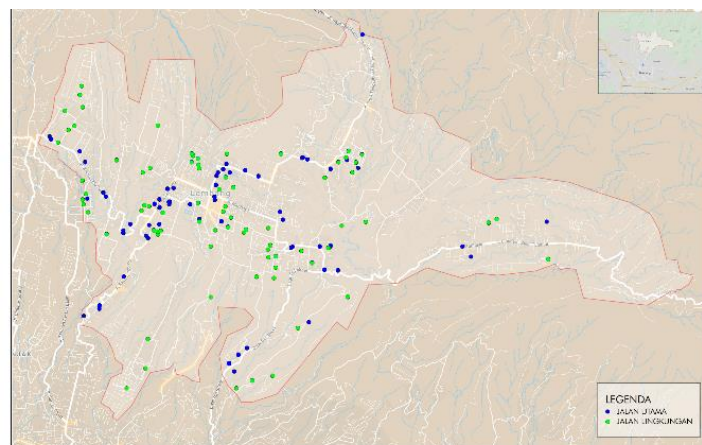


Figure 6. Map of characteristics of accommodation provision locations based on road class in the Lembang tourist area, West Bandung Regency

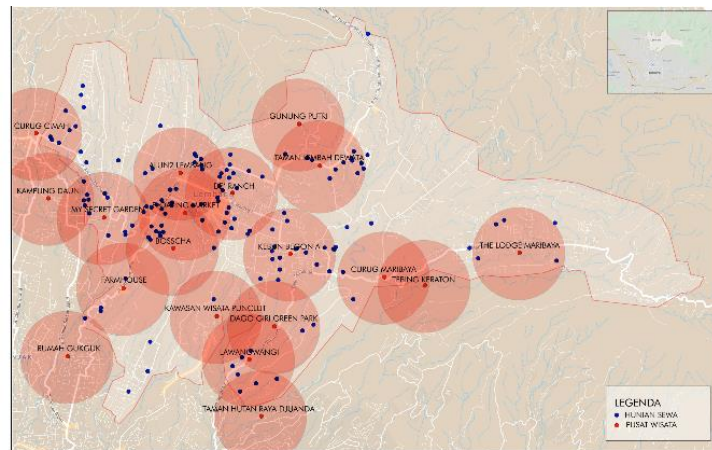


Figure 7. Map of business locations providing accommodation to tourist centers in the Lembang sub-district area, West Bandung Regency

3.5. Characteristics of Business Locations Providing Accommodation to Tourist Centers

The Lembang area, Bandung is famous as a tourist area. Some of the famous tourist attractions that are the main targets for travelers include Farmhouse Bandung, De' Ranch, Punclut Tourist Area, Lawangwangi Creative Space, Begonia Garden, Maribaya Waterfall, The Lodge Maribaya, Gunung Putri, Floating Market, Kampung Daun, Dago Giri Green Park, Dusun Bambu, Djuanda Forest Park, Bosscha Observatory, Curug Cimahi, Tebing Keraton, Amazing Art World, Rumah Guguk, and others. The centers of this tourist area are the main attraction for visitors. Most businesses providing accommodation also offer the advantages of their buildings through their strategic location and proximity to various tourist centers. In [Figure 7](#) below, it can be seen that tourist locations are concentrated in the central part of Lembang. This also causes a large number of businesses providing accommodation to be located in the center of Lembang. From the results of the analysis of location characteristics, it was found that there were only 17 buildings that were not within a 1 km radius of any tourist center. Meanwhile, 119 other buildings are within a 1 km radius of one or more tourist centers. The development of tourist accommodation buildings located more than 1km away from tourist centers shows that there is a different trend in the development of tourist accommodation after the industrial revolution 4.0. Ease of accessibility in tourist center areas after the industrial revolution era, such as the development of digital maps that can be accessed online and in real time, the development of internet network technology-based transportation, and the ease of obtaining information on access to tourist centers has resulted in areas located more than 1km from tourist centers. It also has the potential to be used as a tourist accommodation area.

The results of this analysis prove that business locations providing accommodation, assisted by digital platforms, no longer seem difficult to reach tourist locations. The digital platform has also helped prospective renters to determine which business provides accommodation that is suitable for rent, based on which tourist locations are located at the desired distance.

Apart from the location of businesses providing accommodation which tend to always be within a radius of 1 km from the tourist center, in [Figure 7](#) we can analyze the density of businesses providing accommodation within the radius of the tourist center. The density of red in the radius circle of the tourist center reflects the density of business buildings providing accommodation. For example, at the Floating Market tourist center which also intersects Lembang Square, De' Ranch, and Bosscha, it can be seen that the red color is the most intense as a result of the overlapping radius. In areas with a deeper red color, the number of businesses providing accommodation tends to be greater. This proves that tourist center points greatly influence the placement of accommodation business buildings. The greater the radius of the tourist center in an area, the greater the number of business buildings providing accommodation in that area. The location factor close to tourist areas is no longer the main aspect in developing tourist accommodation. Various easy access to information through various digital platforms has made tourist accommodation develop in areas around tourist areas with more varied distances to tourist centers. The following is a picture of the location characteristics of the surrounding tourist centers. The radius used is 1 km shown in [Figure 7](#).

4. Conclusion

The development of digital platforms has also influenced the development trend of businesses providing accommodation in the Lembang tourist area. The development of business trends in providing accommodation can be seen from location characteristics based on several categories, namely location on road class and distance to tourist centers. The naming of this category is based on the tendency of tourist accommodation locations to develop in tourist areas which is also influenced by location and the availability of access in the form of roads.

Based on location characteristics in road class, as many as 80 units (59%) of the 136 business units providing accommodation are located on neighborhood roads. This shows that road class is no longer the main consideration for businesses providing accommodation in developing tourism businesses. Digital platforms have a significant influence on location characteristics on street classes because businesses providing accommodation located far from main roads can be commercialized just as easily as businesses located on main roads. Ease of access to information through various digital platforms has had a significant influence on the development of the provision of tourist accommodation in environmental road areas. This indicates that the development trend of tourist accommodation is changing due to the industrial revolution 4.0.

The density of businesses providing accommodation tends to concentrate within a 1 km radius of tourist centers. This shows that the existence of digital platforms does not have a significant effect on the location characteristics of businesses providing accommodation to tourist centers. The most developed accommodation business is villas with 57 units (42%) out of 136 units. Villas are a business providing accommodation which, if managed privately, tends to be located in areas that are generally not easy to reach. The large number of villas is due to easy access to information in the industrial revolution 4.0 era. The development of the characteristics of business locations providing accommodation as a result of the industrial revolution 4.0 has opened up opportunities for the small accommodation industry. This type of business providing accommodation that is personally managed and located on a neighborhood road, but close to tourist centers can have more opportunities to develop due to the ease of access offered by digital platforms.

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