

## CLASSIFICATION OF REGENCIES/MUNICIPALITIES IN CENTRAL JAVA BASED ON THE TOURISM RESOURCES

### KLASIFIKASI DAERAH DI PROVINSI JAWA TENGAH BERDASARKAN SUMBER DAYA PARIWISATA

**Edmira Rivani**

(Pusat Penelitian, Bidang Ekonomi dan Kebijakan Publik, BKD  
Jalan Gatot Subroto, Ged. Nusantara I, lantai 2, Setjen DPR RI,  
e-mail: rif\_green@yahoo.com)

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#### Abstrak

*Pariwisata adalah sektor yang mendapat perhatian penting karena dapat memulihkan ekonomi dengan cepat, terutama ekonomi masyarakat daerah. Keragaman pariwisata dapat mendukung perekonomian Indonesia. Jawa Tengah merupakan salah satu provinsi yang memiliki keanekaragaman pariwisata. Kondisi pariwisata di Jawa Tengah tidak homogen, sehingga akan sulit untuk memantau dan membuat rencana pariwisata di daerah itu. Berdasarkan yang disyaratkan, pengelompokan kabupaten dan kota di Jawa Tengah berdasarkan kesamaan karakteristik kondisi pariwisata, sehingga proses pemantauan dan perencanaan akan dilakukan oleh kabupaten dan kelompok kota terbentuk. Pengelompokan kabupaten / kota di Jawa Tengah akan menggunakan metode cluster K-Means. Dalam Penelitian ini, data jumlah objek wisata; desa wisata; wisatawan nasional; turis asing; tenaga kerja; hotel bintang; hotel non-bintang; dan pendapatan pariwisata digunakan untuk menentukan kelompok daerah wisata di Jawa Tengah. Hasil penelitian ini menunjukkan bahwa terdapat tiga (3) kelompok kawasan wisata di Provinsi Jawa Tengah, yaitu daya saing rendah, daya saing menengah, dan kawasan wisata daya saing tinggi. Kesimpulannya, ada banyak kabupaten atau kota yang memiliki potensi bagi pemerintah untuk mengembangkan sektor pariwisata yang disesuaikan dengan kelompok kawasan pariwisata yang memiliki keunggulan atau potensi untuk pengembangan.*

**Kata kunci:** analisis klaster, klaster K-Means, Pariwisata, Jawa Tengah

#### Abstract

Tourism is a sector that gets significant attention because it can restore the economy quickly, especially the economy of the local community. Tourism diversity can support the economy of Indonesia. Central Java is one of the provinces that has tourism diversity. Tourism conditions in Central Java are not homogeneous; that will be difficult to monitor and make plans of tourism in that area. Grouping of regencies and municipalities in Central Java based on the similarity of the characteristics of tourism conditions, so the process of monitoring and planning will be done by regency and municipality groups were formed. The grouping of regencies/municipalities in Central Java used the K-Means cluster method. In this Research, data of numbers of the tourist attraction; tourist village; national tourists; foreign tourists; human resources; star hotel; non-star hotel; and income of tourism was used to determine the group of tourism areas in Central Java. The result of this research shows that there were three (3) clusters of tourism areas in the Province of Central Java, i.e., low competitiveness, middle competitiveness, and high competitiveness tourism areas. In conclusion, there are many regencies or municipalities that have the potential for the government to develop the tourism sector adapted to the group of tourism areas that has an advantage or potential for development

**Keywords:** cluster analysis, K-means cluster, Tourism, Central Java

#### INTRODUCTION

The tourism industry has positive impacts on the national economy, include the contribution of tourism to the Gross Domestic Product (GDP) and the absorption of employment in the tourism industry sector. As stated by the President of the Republic of Indonesia, "Tourism as a leading sector is good news, and all other Ministries must support tourism development".<sup>1</sup>

Unique and exciting tourism will become the identity of a region so that it will be better known by the public. Jero Wacik, in his remarks as Minister of Culture and Tourism, stated that "Tourism is a sector that gets important attention because tourism can restore the economy quickly and evenly, especially the economy of local communities. For that tourism needs to be driven by more targeted and planned development".<sup>2</sup>

<sup>1</sup> Indra Ni Tua, "Sustainable Tourism Development in Indonesia: Harnessing the Contribution, Preserving the Environment", *Forum Group Discussion*, in Malang at 20<sup>th</sup> October 2018

<sup>2</sup> Swardjoko P Warpani, *Pariwisata Dalam Tata Ruang Wilayah*, Bandung: Penerbit ITB, 2007

One Province that has tourism diversity is Central Java Province. Central Java Province has the most tourism objects compared to the other five provinces in Java. It is proved by the number of tourist attractions in Central Java has reached 317, compared to East Java, West Java, Banten, Yogyakarta, and Jakarta just have reached 235, 218, 210, 115, and 32.<sup>3</sup> Despite having a large number of tourism objects, tourism potential in Central Java has not been managed properly. It is seen from the number of domestic tourists who dominate the visits to Central Java (Table 1).

**Table 1.** Local and International Tourists Data 2012-2016

Years	Number of Visitors		Growth	
	National Tourists	Foreign Tourists	National Tourists	Foreign Tourists
2012	25.240.007	363.15		
2013	29.430.609	388.143	16,6%	6,9%
2014	29.852.095	419.584	1,4%	8,1%
2015	33.030.843	421.191	10,64%	0,3%
2016	36.899.775	578.924	11,71%	37,4%

Source: Central Java Provincial Youth, Sports and Tourism Service, 2017

From data obtained over five years shows the growth of the number of domestic tourists who travel in Central Java Province has been decreasing, from 16,6% to 11,71%. Meanwhile, the growth of foreign tourists has been increasing, from 6,9% to 37,4%. To increase the growing number of tourists (domestic and foreign tourists) significantly, planning of improvement is needed. One of them is by planning the concept of tourism development in Central Java. The concept of development can be done by classifying, in which regencies/municipalities are superior in tourism and exploring the potential strategy of tourism based on the clustering tourism area in Central Java Province. The purpose of this study was to analyze the tourist area groups formed based on the number of tourist attractions, tourist villages, human resources, domestic tourists, foreign tourists, income, star hotels, and non-star hotels in each regency/municipalities in Central Java Province. The government can make plans to increase tourism potential in Central Java Province based on the tourist area groups were formed. With this strategy, it will be easier to develop tourism in Central Java.

Tourism is a valuable industry that creating jobs, producing additional income, spurring economic development, promoting economic diversification, adding new products, growing more businesses, increasing tax revenues, and contributing to economic

integration. Tourism is a growth industry that is forecast to continue to grow and is historically associated with rising per capita income, lower relative travel costs, increased leisure time, sound promotional policies, changes in consumers' tastes/preferences toward travel, an abundance of recreational opportunities, and exclusive new products.<sup>4</sup>

Research has identified that income and price are the essential economic variables that influence international tourism demand.<sup>5</sup> Allied with creating demand for a specific destination is the ability of that destination to sustain demand over the long run. One key factor sustaining demand is maintaining positive consumer satisfaction.<sup>6</sup>

Consumer satisfaction is a crucial indicator of the ability of a destination to deliver a product that appeals to the tourist, and an indicator of the ability of a destination to deliver on the promise that is made through the marketing image that is developed in the mind of the tourist. Numerous research articles<sup>7</sup> have examined the issue of consumer satisfaction, and there is almost unanimous agreement that knowledge of customer expectations and requirements provides an understanding of how customers perceive the quality of a good or service. The decision of tourists to visit certain tourist attractions at this time is greatly influenced by the product mix, including the servants provided by the place.

Tourism is seen as the best possible and alternative strategy which can be used for promoting many local areas. It is believed that with tourism, there will be a tendency for environmental sustainability, more job opportunity, expansion in both public and private investment, provision of infrastructural facilities, and economic improvement. The development of tourism in rural areas is an excellent achievement for the local people in terms of employment opportunities created and an avenue for earning additional income. However, the use of local materials and labor in local production is a good illustration of the potential for small-scale development of sustainable tourism.<sup>8</sup>

<sup>4</sup> David L. Edgell, *Tourism Industry Examination and Analysis: Prairie Discovery and Visitors Center*, North Carolina: East Carolina University, 2005, pp. 4.

<sup>5</sup> P. Anastasopoulos, "The U.S. travel account: The impact of fluctuations of the U.S. dollar", *Hospitality Education and Research Journal*, 13, 1989, pp. 469-481.

<sup>6</sup> E.R. Cadotte, and N. Turgeon, "Satisfiers and Dissatisfiers: Suggestions from Consumer Complaints and Compliments", *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour*, 1, 1988, pp. 74-79.

<sup>7</sup> L. Peter, and J. L. Olsen, *Consumer Behaviour: Marketing Strategy Perspectives*, Burr Ridge, IL: Irwin, 1987.

<sup>8</sup> S. Pike, *Destination Marketing: An Integral Marketing Communication Approach*, Amsterdam: Butterworth Heinemann, 2008.

<sup>3</sup> Data and Information Center, "Ministry of Tourism of Republic of Indonesia 2011-2015", 2019, (online), (<http://www.kemepar.go.id/post/data-statistik-informasi-khusus> was accessed on February 8<sup>th</sup> 2019).

Tourism is an economic activity of immense global significance.<sup>9</sup> The tremendous improvement in the global contribution of tourism to the world economy cannot be ignored, no doubt that tourism frequently referred to as the largest industry in the world. Based on the record, international tourism was annually generating over US\$450 billion at the end of the 20th century, considering domestic tourism, the global annual estimate worth US\$3.5 trillion. However, this tremendous growth in tourism figures has been anticipated that this growth will continue until the foreseeable future. The industry is a growing one, and the forecast has shown that there will be a 4% increment in some international tourist arrival, while by 2020, tourist spending is estimated to be US\$2 trillion per annum.<sup>10</sup>

There is no doubt that many nations have turn out to tapped from the tremendous growth in tourism. Many nations have taken steps to per taking in the sharing of the ever-increasing global tourism market. More so, many developing countries have also joined the race. Foreign exchange earnings, employment opportunity, economic diversification, economic growth, broader economic and social development policy, and other factors are the fundamental justification for the establishment and development of tourism.<sup>11</sup>

**METHODOLOGY**

This research was conducted in all regencies and municipalities in Central Java Province using secondary data. Central Java 2016 tourism statistics data (Central Java Provincial Youth, Sports, and Tourism Service, 2017) were used in this study (Appendix 1). The data is presented in the form of several variables related to the tourism sector in all regencies/municipalities in Central Java Province (Table 2).

**Table 2.** Research Variables

Variable	Unit of Value
Tourist Attraction (X1)	Unit
Tourist Village (X2)	Unit
National Tourist (X3)	Number of People
Foreign Tourist (X4)	Number of People
Manpower (X5)	Number of People
Star Hotel (X6)	Rupiah
Non-Star Hotel (X7)	Unit
Income (X8)	Unit

<sup>9</sup> R. G. March & A. G. Woodside, *Tourism Behaviour: Travellers' Decisions and Actions*, Cambridge: CABI Publishing, 2005.

<sup>10</sup> R. Sharpley & D.J Telfer, *Aspects of Tourism; Tourism and Development: Concepts and Issues*, Great Britain: Channel view publications, 2002.

<sup>11</sup> *Ibid.*

K-means cluster was used in this study. K-means algorithm is a non-hierarchical clustering method that seeks partition of the object into some clusters. The basic concept of the k-means clustering algorithm is to determine the number of clusters to be formed at the earliest. Clustering process starts with identifying data  $X_{ij}$  ( $i = 1, \dots, n; j = 1, \dots, m$ ) where n is the number of data to be carried out in clustering, and m is the number of attributes (variables).<sup>12</sup> In the first iterations, the center of each cluster  $c_{kj}$  ( $k = 1, \dots, k; j = 1, \dots, m$ ) is determined arbitrarily. Then we calculate the distance between each data with each cluster center called the centroid. To calculate the distance of data-i to centroid k, called  $d_{ik}$  we use Euclidean distance (see Equation 1).

$$d_{ik} = \sqrt{\sum_{j=1}^m (x_{ij} - c_{kj})^2} \dots\dots\dots 1)$$

with:

- $d_{ik}$  = distance of object i and centroid k,
- $m$  = data dimensions,
- $x_{ij}$  = coordinates of object i in dimension j,
- $c_{kj}$  = coordinates of object k in dimension j.

The data will be a member of the cluster k if the distance of that data to centroid k has the smallest value when compared to the distance to another centroid. It can be calculated using Equation 2.

$$\text{Min} \sum_{k=1}^k d_{ik} = \sqrt{\sum_{j=1}^m (x_{ij} - c_{kj})^2} \dots\dots\dots 2)$$

Then, classify the data which are members of each cluster. Centroid value can be calculated by finding the average value of the data, which are members of the cluster using Equation 3.

$$c_{kj} = \frac{\sum_{i=1}^p x_{ij}}{p} , \dots\dots\dots 3)$$

with:

- $x_{ij} \in$  cluster k,
- $p$  = number of cluster k member.

Steps to perform clustering using K-Means algorithm is as follows.<sup>13</sup>

1. Suppose given data matrix  $X = \{x_{ij}\}$  measuring  $n \times m$  with  $i = 1, 2, \dots, m$ .
2. Determine the number of cluster (k), set the centroid randomly
3. Calculate the distance of each data to the centroid using Equation 1

<sup>12</sup> J. Han and M. Kamber, *Data Mining, Concepts and Techniques*, Massachusetts: Morgan Kaufmann Publisher, 2000.

<sup>13</sup> *Ibid.*

4. Classify data into cluster with the shortest distance using Equation 2
5. Calculate the new centroid using equation 3
6. Repeat step 3 through 5 until there is no more data move to another cluster

In general, the algorithm can be arranged in the schematic in figure 1.

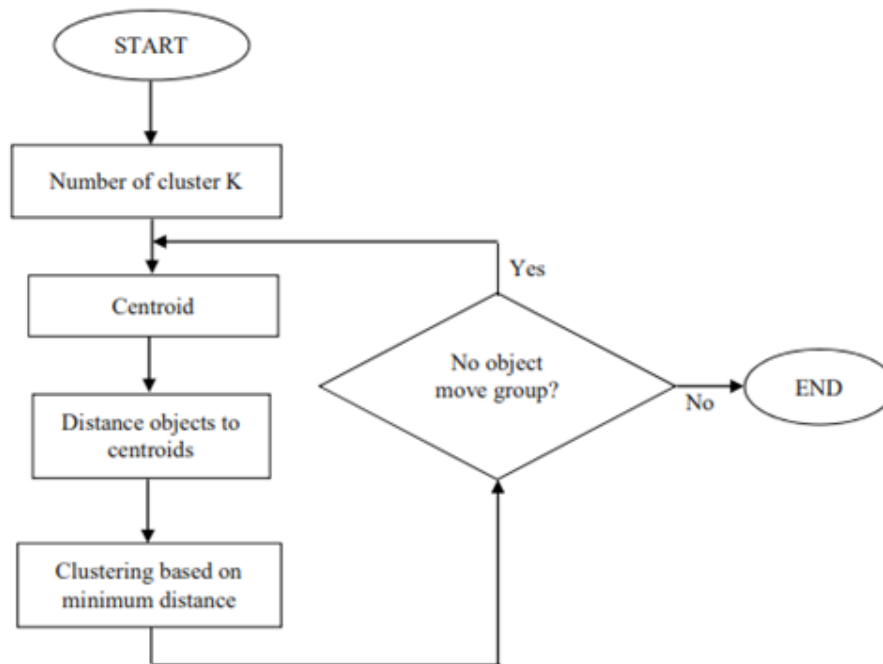


Figure 1. Flowchart of K-Means Clustering Algorithm

The purpose of this article is also to determine what has been researched so far about tourism in Central Java. To achieve this objective, a comprehensive review of journal articles, conference papers, books, and edited volumes was performed.

## ANALYSIS AND RESULTS

The increasingly rapid growth of the tourism industry competition makes a destination that must continue to improve various facilities to meet the needs of tourists and find ways to promote tourist attractions.<sup>14</sup> Values, perceptions, and uniqueness of historical heritage can be used as objects to attract tourists.<sup>15</sup> Dwyer describes competitiveness as an essential factor in developing the tourism industry

to become a thriving destination.<sup>16</sup> To attract tourists, the tourism industry must focus on the competitiveness of tourist destinations (destination competitiveness). Understanding competitive tourism indicators can influence a tourist's decision, "whether he will visit a destination or not." Ritchie and Crouch<sup>17</sup> define destination competitiveness as the ability to create value so that it can improve local

and national welfare by managing assets better and integrating these relationships into economic and social models. They show that measuring destination competitiveness, attractions, and resources is the primary determinant in promoting tourism. They found that the destination image, which consists of resources and natural beauty is the main factor in measuring destination competitiveness.

Destination competitiveness can be improved by proper collaboration between destination resources and attractions, appropriate strategic planning, and increasing competitiveness strategy efforts.<sup>18</sup> Crouch and Ritchie<sup>19</sup> state that to create a competitive destination, the quality of excellent service and satisfying experience is needed to attract tourists. Therefore, to achieve tourist competitiveness,

<sup>14</sup> S. Hudson, B. Ritchie, & S. Timur, "Measuring destination competitiveness: An empirical study of Canadian ski resorts". *Tourism and Hospitality Planning & Development*, 1, 2004, pp.79-94.

<sup>15</sup> C.M. Chen, S.H. Chen, & H.T. Lee, "The destination competitiveness of Kinmen's tourism industry: exploring the interrelationships between tourist perceptions, service performance, customer satisfaction and sustainable tourism", *Journal of Sustainable Tourism*, 19, 2011, pp.247-264.

<sup>16</sup> L. Dwyer and C. Kim, "Destination competitiveness: determinants and indicators", *Current issues in tourism*, 6, 2003, pp.369-414.

<sup>17</sup> G.I. Crouch & J.R.B. Ritchie, "Tourism, Competitiveness and Societal prosperity", *Journal of Business Research*, 44,1999, pp.137-152.

<sup>18</sup> D.O Gomezelj, & T. Mihalic, "Destination competitiveness--Applying different models, the case of Slovenia", *Tourism Management*, 29, 2008, pp.294-307.

<sup>19</sup> G.I. Crouch and Ritchie, *Op.Cit.*



a good collaboration between marketing and management strategies must be developed.<sup>20</sup> Chen et al.<sup>21</sup> stated that destination competitiveness can be improved by improving the destination's right attractions and service performance to satisfy customers, encouraging them not only to review goals but also to recommend this to others. The more positive the image of a destination, the higher the benefits that the destination will get. Image/image of a destination is the most critical factor because it affects the level of satisfaction and subsequent behavior, including word-of-mouth and subsequent visits. Thus, the positive experience of tourists for the services, products, and other resources provided by tourist destinations is essential.<sup>22</sup> Recommendations from tourists who have visited a destination can be used as the most reliable source of information for future tourists.<sup>23</sup> Therefore the tourism industry must improve the image of their destination to be more attractive to tourists visiting the destination. A positive image of heritage tourism objects, in particular, is believed to produce positive things for destination competitiveness.<sup>24</sup> The uniqueness of the destination can also attract tourists. Therefore, by understanding the destination image, positive contributions to tourism satisfaction and destination competitiveness will be obtained.<sup>25</sup> Thus tourism managers must explore the competitive advantages of a destination and analyze destination competitiveness.

In this section, analysis and discussion of tourism-related variables in Central Java Province of 2016 will be conducted. The result from this analysis can be used to make plans for increasing tourism potential in Central Java Province based on the tourist area groups were formed. With this strategy, it will be easier to develop tourism in Central Java.

### 1. Background of Tourism in Central Java

Central Java Province is one of the provinces in Java Island, which is located on the crossing between West Java and East Java so that many tourists often miss the Province of Central Java because Central Java Province

is only a crossing area. If tourists can be withdrawn to spend their time in Central Java Province even though in a day's time, it has had a positive effect on the development of a tourism business. Thus, the tourism industry is a service sector that is very important to develop. These sources are generated from taxes, levies, and others that have been ratified. Central Java Province has many very interesting attractions with some ancient buildings. Other tourist objects include Maerokoco Castle (Central Java Mini Park) and the Indonesian Record Museum. One of the pride in Central Java Province is Borobudur Temple, the largest Buddhist monument in the world, which was built in the 9th century, found in Magelang Regency. Mendut and Pawon Temples are also located in a complex with Borobudur Temple. Prambanan Temple on the border of Klaten Regency and Yogyakarta Special Region is the largest Hindu temple complex in Indonesia. In the Dieng region, there are groups of Hindu temples, which were built before the Ancient Mataram era. The Gedong Songo temple complex is located on the slopes of Mount Ungaran, Semarang Regency. The southern part of Central Java also holds several exciting natural attractions, including Goa Jatijajar and Karangbolong Beach in Kebumen Regency, and Baturaden in Banyumas Regency. In the North, there is a Guci tourist attraction on the slopes of Mount Slamet, Tegal Regency, and Pekalongan City, known as the City of Batik. The Western Pantura region holds a lot of religious tourism, such as the Great Mosque of Demak, which was founded in the 16th century is an artistic building with a blend of Islamic and Hindu architecture. Demak is the first Islamic kingdom on Java. Furthermore, in the Western Pantura region, there are also three Sunan graves of guardians, namely Sunan Kalijaga, Sunan Kudus, and Sunan Muria.

The tourism sector will be one of the important economic activities in the economy of a country, if it is developed in a planned and manner integrated, the role of the tourism sector will exceed the sector of oil and gas (oil and gas natural gas) and other industries. The successful development of the sector tourism means that it will increase its role in regional revenue, in the receipt of local where tourism is significant component revenue.

Tourism is an industry that depends on the number of tourist arrivals. With this, the management and improvement of the use of Tourism Destination Areas must be well organized and managed. In the current era, the tourism sector is a potential sector in boosting one of the sources of the regional revenue, so that the development and utilization of potential tourism resources are expected to contribute to economic development.

<sup>20</sup> M. F. Cracolici, P. Nijkamp, & P. Rietveld, "Assessment of tourism competitiveness by analysing destination efficiency", *Tourism Economics*, 14, 2008, pp.325-342.

<sup>21</sup> C.M. Chen et al, *Op.Cit.*

<sup>22</sup> A. Yuksel, "Tourist shopping habitat: Effects on emotions, shopping value and behaviours". *Tourism Management*, 28, 2007, pp.58-69.

<sup>23</sup> C. G. Q. Chi, & H. Qu, "Examining the structural relationships of destination image, tourist satisfaction and destination loyalty: An integrated approach". *Tourism Management*, 29, 2008, pp.624-636.

<sup>24</sup> D. J. Timothy, *Cultural Heritage and Tourism: An Introduction*, Toronto: Channel View Publications, 2011.

<sup>25</sup> L. Dwyer and C. Kim, *Op.Cit.*

**Table 3.** Correlation Coefficient Between Variables

	Tourist Attraction	Tourist Village	National Tourist	Foreign Tourist	Manpower	Star Hotel	Non-Star Hotel	Income
Tourist Attraction	1	0,519*	0,363*	0,166	0,436*	0,263	0,368*	0,138
Tourist Village		1	-0,023	-0,066	2,58	-0,016	-0,106	-0,114
National Tourist			1	0,779*	0,522*	0,491*	0,473*	0,764*
Foreign Tourist				1	0,398*	0,261	0,124	0,916**
Manpower					1	0,429*	0,251	0,431*
Star Hotel						1	0,289	0,119
Non-Star Hotel							1	0,215
Income								1

\*\* Correlation is significant at the 0,01 level (2-tailed)

\* Correlation is significant at the 0,05 level

## 2. Multicollinearity Test

The variables in this study have different units of value and broad diversity; before starting the further analysis, the existing data should be in a standardized form (appendix 2). In cluster analysis, there are two assumptions that must be met; namely, the sample reflects the population, and

by shrinking (reducing) their dimensions. This is done by removing the correlation between the independent variables through the transformation of the independent variables from origin to the new variable, which has no correlation at all.

Eigenvalues show the relative importance of each factor in calculating the variance of the eight

**Table 4.** Eigenvalues of Research Variables

Eigenvalue	3.4802	1.6509	1.1212	0.7907	0.4707	0.3030	0.1286	0.0547
Proportion	0.435	0.206	0.140	0.099	0.059	0.038	0.016	0.007
Cumulative	0.435	0.641	0.782	0.880	0.939	0.977	0.993	1.000

there is no multicollinearity.<sup>26</sup> Before conducting the K-Means Cluster analysis, firstly test the assumption of multicollinearity. To test multicollinearity, we can use the correlation coefficient between variables. If the correlation coefficient is high enough, it is suspected that there is multicollinearity.<sup>27</sup> Conversely, if the correlation coefficient is relatively low, it is suspected that it does not contain elements of multicollinearity. In cluster analysis, the variables that occur multicollinearity are implicitly weighted more. The results of the calculation of the Spearman Rank correlation coefficient are shown in Table 3.

From Table 3, it is known that there are several significant correlation values between variables; this indicates that multicollinearity occurred in this study (starred). So to eliminate multicollinearity is Principal Component Analysis (PCA).

## 3. Handling Multicollinearity

Principal Component Analysis (PCA) procedures basically aim to simplify the observed variables

variables analyzed. The arrangement of eigenvalues is always sorted from the largest to the smallest, with the criterion that the number of eigenvalues below one is not used in calculating the number of components formed. Based on the eigenvalue, there are only three new components formed, because four other variables have eigenvalues below 1. The component will be a new variable used for the analysis of K-Means Cluster.

**Table 5.** Loading Factor of Principal Component (PC) Analysis

Variable	PC1	PC2	PC3
Tourist Attraction	0.273	0.553	-0.036
Tourist Village	0.047	0.611	-0.473
National Tourist	0.498	-0.113	0.056
Foreign Tourist	0.437	-0.315	-0.307
Manpower	0.380	0.240	-0.075
Star Hotel	0.290	0.142	0.456
Non-Star Hotel	0.265	0.113	0.613
Income	0.431	-0.344	-0.297

Component 1 consists of the number of domestic tourists, foreign tourists, human resources, and income; while for component 2 consists of the number of tourist attractions and tourist villages; the third component consists of the number of star and non-star hotels.

<sup>26</sup> J. F. Hair, Anderson JR., Tatham R. E., and W. C. Black, *Multivariate Data Analysis* (fifth edition), USA: Prentice-Hall, Inc, 1998.

<sup>27</sup> A. Widarjono, *Ekonometrika Teori dan Aplikasi untuk Ekonomi dan Bisnis*. Yogyakarta: Ekonisia FE UII, 2007.



**Table 7.** Result of K-Means Clustering

Cluster	Score PC 1	Score PC 2	Score PC 3	Cluster Member
Cluster 1 (High Competitiveness)	2,45	0,64	1,91	Banyumas, Karanganyar, Semarang regency, Semarang, Surakarta
Cluster 2 (Intermediate Competitiveness)	7,13	-3,66	-2,92	Magelang regency
Cluster 3 (Low Competitiveness)	-0,67	0,02	-0,23	Banjarnegara, Batang, Blora, Boyolali, Brebes, Cilacap, Demak, Grobogan, Jepara, Kebumen, Kendal, Klaten, Kudus, Magelang, Pati, Pekalongan regency, Pekalongan, Pemalang, Purbalingga, Purworejo, Rembang, Salatiga, Sragen, Sukoharjo, Tegal regency, Tegal, Temanggung, Wonogiri, Wonosobo

such as cultural tourism, religious tourism, and nature tourism. Cultural tourism in this regency, for example, the Borobudur temple. The Borobudur Temple is a leading tourist attraction in Central Java Province, which gets protection from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as a World Heritage. The highest visitors tourism object in 2016 is the Borobudur Temple, followed by Ketep Pass attractions. Meanwhile, other tourist objects have a little number of visitors, not more than half of the Ketep Pass Tourism Object's visitors. To overcome this problem, the Tourism and Culture Office of Magelang regency should do some strategies including management improvement in tourist destinations; provide and improve infrastructure and facilities; utilization of information technology for marketing and promotion; development of amenities, highlighting other tourism objects besides the Borobudur Temple and Ketep Pass.

The third cluster consists of Banjarnegara, Batang, Blora, Boyolali, Brebes, Cilacap, Demak, Grobogan, Jepara, Kebumen, Kendal, Klaten, Kudus, Magelang, Pati, Pekalongan regency, Pekalongan, Pemalang, Purbalingga, Purworejo, Rembang, Salatiga, Sragen, Sukoharjo, Tegal regency, Tegal, Temanggung, Wonogiri, Wonosobo. This last cluster is a tourist area with low competitiveness. The tourist areas in this cluster have a positive value in component 2 (number of tourist attractions and tourist villages), indicates the strength of the component. While component 1 (the number of domestic tourists, foreign tourists, human resources, and income) and component 3 (star and non-star hotels) are negative, so the government has to pay attention to the components 1 and 3 (related to hotels and plans or programs to increase the number of tourists). This group of tourist areas is a priority area to be developed so the tourism sector can contribute to the regional economy. Also, this group, at least, can compete nationally. The strategies to achieve that goal are to innovate the types of tourism offered, improve the quality of human resources,

add infrastructures and facilities, improve amenities, and make marketing plans such as making tourism packages with tourism objects that already famous.

Overall, the growth in the number of tourists, which contribute to the economy of a region and society, can be supported by cultural products as ancestral heritage, both tangible and intangible. This is because these cultural products are loaded with spiritual, religious, ethical, and moral values. This is very necessary because, in line with increasing people's welfare, the need for vacation also increases. To achieve these goals, it is necessary for the purpose of attractive tourist attractions, available facilities such as transportation to reach tourist destinations, tourist products that are in demand, and so forth.

Current destination development requires integration between Central and Regional Governments in promoting tourist attraction. For this reason, openness in coordination and integrated promotional expertise is needed. Where, this can have a positive impact on the number of visits, which in turn will affect employment opportunities, business opportunities, establish cultural relations, and friendship. To realize this, it is necessary to prepare human tourism resources that are in line with international standards, so that they can unite all the forces in developing tourism. This must also get support and guidance strategies and policies from the government so that they can create comfort, health, fairness, smoothness, and different uniqueness that can be felt by tourists.

## CLOSING

### Conclusion

Central Java Province has tourism potentials that can still be improved, where each region has different levels of competitiveness. With the different levels of competitiveness, there would be different treatments to increase the potential of tourist areas. The government should pay more attention to the group of tourist areas with low competitiveness and adding tourism support facilities to the group of tourist areas with intermediate competitiveness meanwhile, maintaining the quality



of tourist areas with high competitiveness. Group of tourist areas with high competitiveness are ready to be developed internationally, while the group of tourist areas with low competitiveness is a priority area to be developed so the tourism sector can contribute to the regional economy. In addition, the group of tourist areas with low competitiveness is expected to compete nationally.

The group of tourist areas with intermediate competitiveness is a unique group, where this area relies on Borobudur and Ketep Pass temples as tourist attractions, while for other tourist objects, the tourists are less interested. The government and related parties have to improve management in tourist destinations; provide and improve infrastructure and facilities; utilize information technology for marketing and promotion; development of facilities; and highlight other attractions besides the Borobudur Temple and Ketep Pass. Thus, the choice of tourism objects becomes more varied, will make this tourist area has high competitiveness value, and worthy of being developed internationally.

### Recommendation

The growth of the number of tourists, which contribute to the economy of a region and society, can be supported by cultural products as ancestral heritage, both tangible and intangible. Current destination development requires integration between Central and Regional Governments in promoting tourist attraction. For this reason, openness in coordination and integrated promotional expertise is needed. Where, this can have a positive impact on the number of visits, which in turn will affect employment opportunities, business opportunities, establish cultural relations, and friendship. To realize this, it is necessary to prepare human tourism resources that are in line with international standards, so that they can unite all the forces in developing tourism. This must also get support and guidance strategies and policies from the government so that they can create comfort, health, fairness, smoothness, and different uniqueness that can be felt by tourists.

Other important things are developing infrastructure and providing recreational facilities, tourists, and local communities benefit from each other. Tourism should be developed in accordance with the tourist destination area. The development takes into account the cultural, historical, and economic levels of tourist destinations. For tourists, developed tourist destinations like that will be able to provide a unique experience for them.

Clearly, factors affecting the process of and the decision to travel, along with the choice of

destination, are changing. More tourists are looking for a specific experience rather than a destination (experiential tourism). Learning vacations, spas, bird watching, and sustainable tourism products (inclusive of ecotourism, agritourism, adventure tourism, historical, heritage, and cultural sites) have grown significantly in the last five years. While not much is available to measure the growth of this trend, tourism publications and promotional literature are already shifting focus in response to this demand.

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**Appendix 1. Central Java 2016 Tourism Statistics data**

Regencies/ Municipalities	Tourist Attractions	Tourist Village	National Tourist	Foreign Tourist	Manpower	Star Hotel	Non-Star Hotel	Income
Banjarnegara	15	0	1092582	5727	262	1	9	13525062178
Banyumas	24	0	1694676	439	194	10	170	9517773400
Batang	8	0	1008632	0	88	2	9	2751268200
Blora	17	0	229823	946	157	5	30	366647500
Boyolali	15	0	592046	0	34	2	13	624478450
Brebes	13	0	477395	0	99	2	11	1279481350
Cilacap	22	0	524951	0	60	11	37	2206953295
Demak	8	0	1526709	571	137	1	4	1355086000
Grobogan	13	0	448079	0	73	6	7	3027683500
Jepara	33	4	1753238	21357	227	5	68	3172623375
Karanganyar	20	0	1352639	5864	156	7	170	1099281500
Kebumen	9	0	1043868	0	93	1	30	5453547520
Kendal	15	0	164106	0	69	0	25	1670460000
Klaten	15	0	1315641	68651	3,191	1	52	863948365
Kudus	29	10	850414	41	307	7	18	444981520
Magelang Regency	17	0	4300990	308285	579	7	44	105745956305
Magelang	10	0	94971	4152	133	7	11	0
Pati	23	0	1247109	7	126	6	27	372583000
Pekalongan Regency	21	0	371478	22	345	1	4	2937600000
Pekalongan	6	0	546461	259	86	10	22	827888750
Pemalang	10	6	423148	0	254	3	17	2059805700
Purbalingga	12	0	1377126	52	237	0	13	21168047378
Purworejo	25	6	958031	38	649	1	9	4509000
Rembang	10	0	1222448	7137	151	1	14	2199686462
Salatiga	6	0	74304	39	155	4	22	621281000
Semarang Regency	36	0	2228500	29433	581	7	229	32328453714
Semarang	38	1	3023441	101756	633	63	59	18656657836
Sragen	30	0	451324	631	299	0	9	3082585000
Sukoharjo	2	0	53067	0	9	9	8	106626000
Surakarta	8	0	2489421	19664	433	42	116	7199790370
Tegal Regency	4	0	684238	1064	102	4	36	4037931845
Tegal	4	0	559669	0	785	10	18	561190100
Temanggung	5	0	416638	393	73	2	13	6272901500
Wonogiri	7	1	420084	120	98	0	26	3931572113
Wonosobo	8	0	1027789	2276	48	2	37	3510475100

## Appendix 2. Standardized form of Central Java 2016 Tourism Statistics data

$$Z = \frac{x_i - \bar{x}}{s}$$

Keterangan:

Z : Standardized variable

 $x_i$  : data $\bar{x}$  : Mean

s : Standard deviation

Regencies/Municipalities	Z <sub>Tourist Attraction</sub>	Z <sub>Tourist Village</sub>	Z <sub>National Tourist</sub>	Z <sub>Foreign Tourist</sub>	Z <sub>Manpower</sub>	Z <sub>Star Hotel</sub>	Z <sub>Non-Star Hotel</sub>	Z <sub>Income</sub>
Banjarnegara	-.11088	-.36032	.06966	-.19706	.20243	-.48182	-.58670	.32607
Banyumas	.74100	-.36032	.73834	-.29342	-.13335	.25854	2.49733	.10870
Batang	-.77345	-.36032	-.02357	-.30142	-.65678	-.39956	-.58670	-.25834
Blora	.07843	-.36032	-.88851	-.28418	-.31606	-.15277	-.18444	-.38769
Boyolali	-.11088	-.36032	-.48623	-.30142	-.92343	-.39956	-.51008	-.37370
Brebes	-.30019	-.36032	-.61356	-.30142	-.60246	-.39956	-.54839	-.33817
Cilacap	.55169	-.36032	-.56074	-.30142	-.79504	.34080	-.05035	-.28787
Demak	-.77345	-.36032	.55180	-.29102	-.41482	-.48182	-.68248	-.33407
Grobogan	-.30019	-.36032	-.64612	-.30142	-.73085	-.07051	-.62502	-.24335
Jepara	1.97149	1.44129	.80338	.08777	.02960	-.15277	.54347	-.23548
Karanganyar	.36239	-.36032	.35848	-.19456	-.32100	.01175	2.49733	-.34795
Kebumen	-.67880	-.36032	.01556	-.30142	-.63209	-.48182	-.18444	-.11176
Kendal	-.11088	-.36032	-.96149	-.30142	-.75060	-.56409	-.28022	-.31697
Klaten	-.11088	-.36032	.31739	.94961	-1.07557	-.48182	.23698	-.36071
Kudus	2.16080	4.14372	-.19929	-.30068	.42464	.01175	-.41431	-.38344
Magelang Regency	.07843	-.36032	3.63288	5.31650	1.76778	.01175	.08374	5.32845
Magelang	-.58415	-.36032	-1.03827	-.22576	-.43457	.01175	-.54839	-.40758
Pati	.64635	-.36032	.24128	-.30130	-.46914	-.07051	-.24191	-.38737
Pekalongan Regency	.45704	-.36032	-.73119	-.30102	.61228	-.48182	-.68248	-.24823
Pekalongan	-.96276	-.36032	-.53685	-.29670	-.66666	.25854	-.33768	-.36267
Pemalang	-.01623	2.34210	-.67380	-.30142	.16293	-.31730	-.43346	-.29585
Purbalingga	-.39484	-.36032	.38567	-.30048	.07898	-.56409	-.51008	.74065
Purworejo	1.40357	2.34210	-.07977	-.30073	2.11343	-.48182	-.58670	-.40733
Rembang	-.58415	-.36032	.21389	-.17136	-.34569	-.48182	-.49093	-.28826
Salatiga	-.96276	-.36032	-1.06123	-.30071	-.32593	-.23504	-.33768	-.37388
Semarang Regency	1.87684	-.36032	1.33120	.23494	1.77765	.01175	3.62750	1.34603
Semarang	2.16080	.09008	2.21405	1.55289	2.03443	4.61846	.37107	.60443
Sragen	1.30892	-.36032	-.64251	-.28992	.38514	-.56409	-.58670	-.24037
Sukoharjo	-1.34137	-.36032	-1.08481	-.30142	-1.04688	.17628	-.60586	-.40179
Surakarta	-.77345	-.36032	1.62097	.05692	1.04683	2.89094	1.46293	-.01704
Tegal Regency	-1.15206	-.36032	-.38384	-.28203	-.58765	-.23504	-.06951	-.18855
Tegal	-1.15206	-.36032	-.52219	-.30142	2.78500	.25854	-.41431	-.37714
Temanggung	-1.05741	-.36032	-.68103	-.29426	-.73085	-.39956	-.51008	-.06731
Wonogiri	-.77345	.09008	-.67721	-.29924	-.60740	-.56409	-.26106	-.19432
Wonosobo	-.77345	-.36032	-.00230	-.25995	-.85430	-.39956	-.05035	-.21716