

# Geographical prespective in managing worker's recruitment and rotation

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**Abstract.** Competition in retail business continues to occur as it continues to develop. Multiple things have to be considered in creating a competitive business, and one of them includes human resource management. The level of satisfaction of human resources used must be considered for it to be reciprocal to the company. For employees, one of their work satisfaction points is ease of work access. Residence location of mid to low-level employee is an important consideration especially in a retail business with outlets spread in many locations and employee salaries that tend to be low. This study took place in an international hardware retail company and aims to review the process of employee management, in particular, the process of recruitment and employee rotation based on geographical perspective. Various public transportation that supports access to work sites is assessed using a geographic information system approach.

*Keywords:* recruitment, employee rotation, geographical information system, public transportation.

## 1. Background

Current development affects the development of business in Indonesia and one of which is a retail business. Retailing is an activity of selling goods and services for consumers to meet their personal needs [1]. Retail business in Indonesia is very potential remembering that Indonesia is one of the countries with the highest population density. A high number of citizens mean a high number of consumers as retail business are a business that distributes goods or services to the consumer.

No business is independent of human resources. Human resources reflect the quality of the effort provided by a person within a specific time to produce goods and services. An example is a business such as a retail business that provides services produced by human resources to run its business. Adam Smith emphasized that a sufficient allocation of human resources is a requirement for economic growth [2]. It takes quality human resources in building an advanced business. Therefore, recruitment of workers to be placed in business is highly significant. It takes the right strategy and criteria in determining suitable workforce with the line of business undertaken.

One of the effective methods to allocate human resources is through work rotation. Work rotation is done to meet the needs of job positions in the company. According to Indrayati [3], work rotation has a positive and significant effect on job satisfaction, and work motivation has the positive and significant effect on job satisfaction. Therefore, this work rotation process is important to note with the aim of increasing the productivity of the company.

Accessibility is a measure of convenience or ease of reaching a location. The more networks exist in an area then the accessibility of the area is high [4]. According to Azis & Asrul [5] accessibility is affected by several factors such as distance, time, and travel costs and 90% of residential-based travel



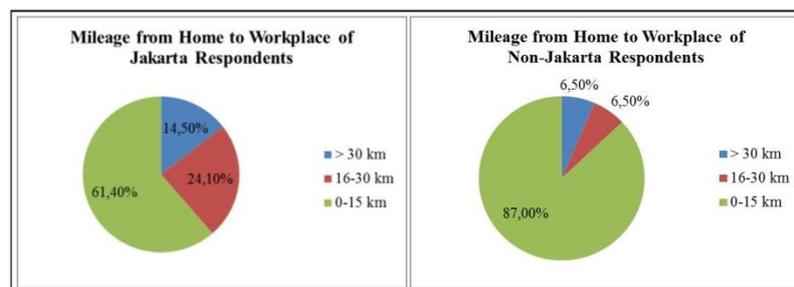
means that every trip to work, education, entertainment or other areas always starts from the residence (home) and ends with a return trip home.

Transportation has a decisive role in improving work accessibility for socially disadvantaged groups. Some critical constraints still affect the fulfillment of the basic needs of these groups regarding security, reliability, affordability, and availability [6]. Transportation mode used is very varied with different characteristics. The modes of transportation according to Azis & Asrul [5] that are commonly used to go to work location are car, train, city transportation, bus, motorcycle, and bicycle. The use of public transportation in Indonesia tends to decrease every year except for the increasing use of trains in the Greater Jakarta Area and BRT users in Jakarta [7]. The majority of employees that reluctant to use public transportation are employees with income above 5 million [8]. Most private vehicles used by residents in Indonesia are motorbikes which are also the most significant contributors to accidents in Indonesia [9]. The low price and easy to use motorbike is the reason for Indonesians to use it [10].

This study aims to review the process of employee management, especially in the process of recruitment and rotation of employees based on geographical perspective. Furthermore, this study also expected to provide information to employees regarding what public transportation is available near their place of residence to get to the workplace. Through the information provided regarding public transportation, it is hoped that this can increase the awareness of employees on the environment in Indonesia. Especially in order to reduce the use of motorcycles that have a significant impact on the environment due to motor vehicle emissions and exposure to high emission levels pose a high risk to human health [11]. The residence location of middle to lower level employees is essential to be considered, especially in a retail business with some outlets spread in many locations. Based on the Ministry of Finance in Indonesia [12] workers classified in the middle to the lower level are employees who have monthly salaries below 2.6 million rupiahs per month. Various public facilities that support access to work sites are assessed using a Geographical Information System (GIS) approach. Public vehicles information presented in this study are trains, public buses and BRT (Bus Rapid Transit) which are contributors to the lowest accident in Indonesia [9]. The study examines an international hardware retail company with 120 outlets spread across Indonesia and 56 outlets spread across Greater Jakarta area, with approximately 70 employees per outlet. The employee salaries in this company start at 2.5 million rupiahs per month so it can be indicated as middle to lower level employees.

## 2. Research Methods

This study uses a GIS approach to manage, analyze, and display all the desired geographic information [13]. The multi-ring buffer technique is used to create buffers with more than one area for each selected coordinate point. Distance information of workers is obtained from a survey conducted by Kompas [14], i.e., 0 - 15 km as can be seen in Figure 1. According to this information, buffers are created within a distance of 5 km, 10 km, and 15 km. The software used is QGIS Desktop 2.18.14.

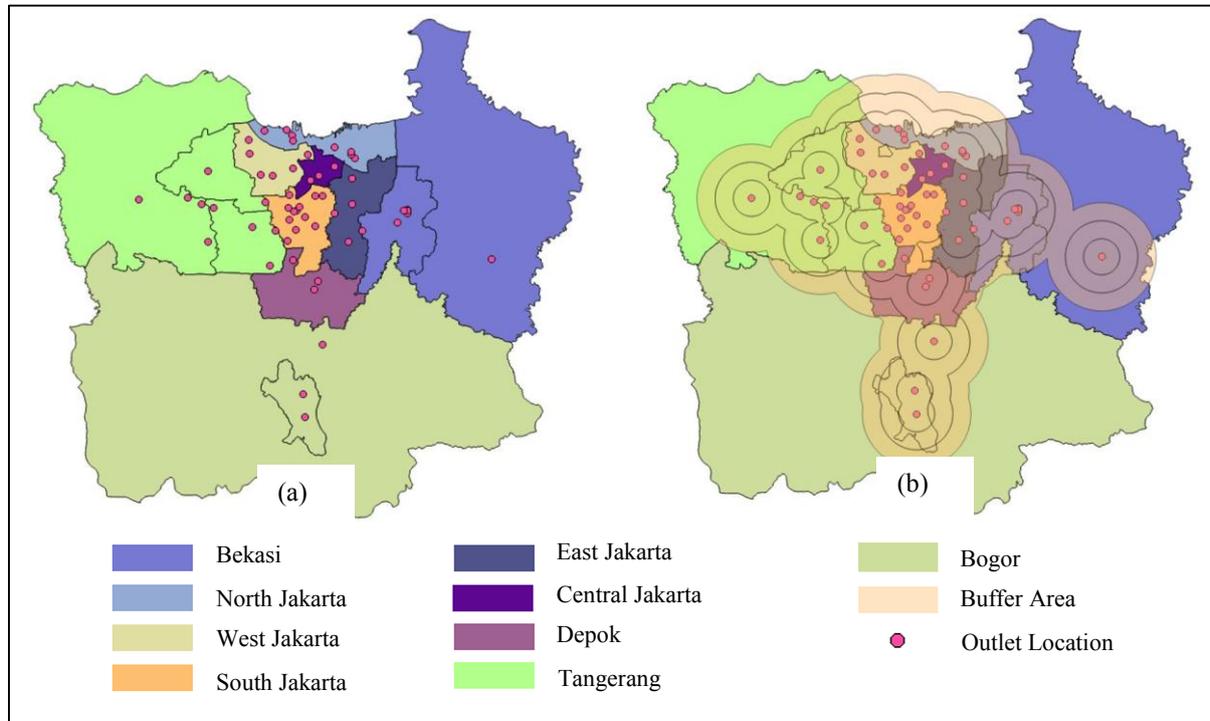


**Figure 1.** Mileage from Home to Workplace of Greater Jakarta Area Respondents

(source: Kompas (2015))

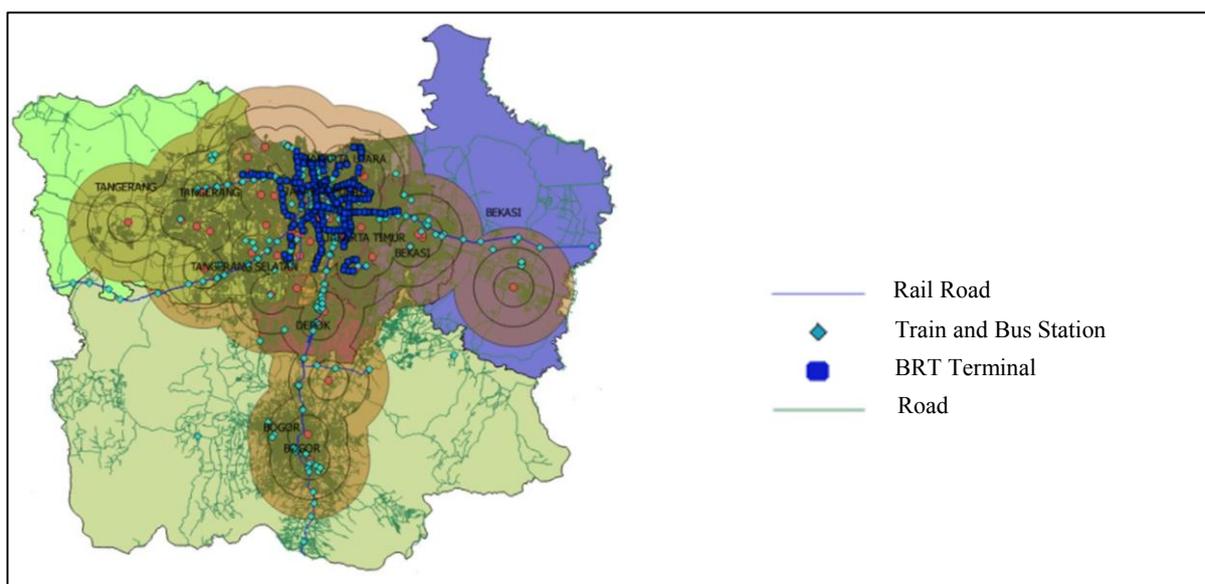
Spatial data collected includes location data of 56 outlets located in Greater Jakarta area, administrative boundaries, as well as data on transportation facilities (Bus Rapid Transit terminal location, public bus stop location, and train station location). Demographic data is obtained from the

Indonesian Central Bureau of Statistic that includes population data, family size data, employee data, and the unemployment rate for the Greater Jakarta area. Figure 2 shows the outlet location in Greater Jakarta Area and buffer areas within 5 km, 10 km, and 15 km.



**Figure 2.** Spatial Data Visualization; (a) Outlet Distribution; (b) Buffer Area for each Outlet

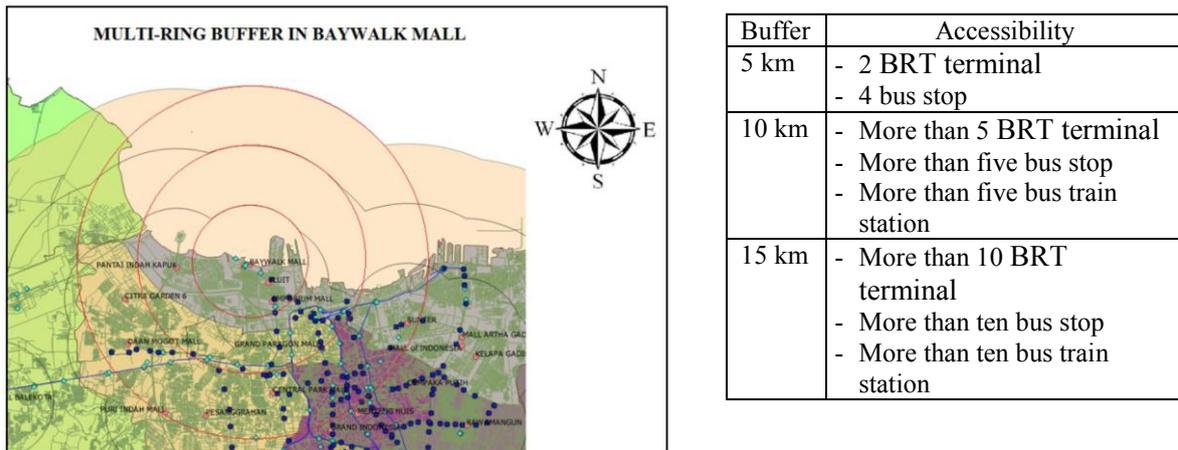
Supported by Bus Rapid Transit (BRT), transportation facilities in Jakarta is more favorable to another city. BRT route is available to access by the citizen in North Jakarta, East Jakarta, South Jakarta, West Jakarta, and Central Jakarta. The analysis shows that only one outlet has less transportation facility, i.e., only one mode of transportation exists in the 15 km buffer area in the form of a shuttle car. Figure 3 shows the transportation facilities in the Greater Jakarta Area.



**Figure 3.** Transportation Facilities in Greater Jakarta Area

### 3. Findings and Discussion

The buffer area shown in Figure 2 shows the recruitment area for each outlet. Based on the average distance data covered by Jakarta and Non-Jakarta respondents it is found that the average distance traveled from residence to workplace is 0-15 km. Therefore, buffer technique used is multi-ring buffer using 5 km, 10 km, and 15 km buffer area, with outlet's coordinate as the center point of the buffer area. Access to train, bus, and BRT can also be seen in the buffer area as consideration for employees who use public transportation to go to work. Figure 4 shows an example of a multi-ring buffer for an outlet inside a mall.



**Figure 4.** Accessibility in Baywalk Mall Store

In this study, transportation facilities in the object of research are public transportation such as bus, train, and BRT. These public transportations are chosen because the cost spent to use the transportation is affordable, and the route is long. Recruitment is conducted by looking at the smallest buffer from the residence applicants with available store locations. Job rotation was also conducted using a buffer with priority smallest buffer area at 5 km. It aims to get the closest distance and also minimizes the possibility of mutation location where employees live far to store destinations. However, if there is no outlet in the buffer range of 5 km, then create optional in the buffer 10 km or 15 km depending on the availability of existing destination store.

### 4. Conclusion

This study proves that the Geographic Information System is highly applicable in displaying accessibility information that is easy to understand, interesting and easy to use, with the availability of free, open source and licensed software. Multi-ring buffer technique allows the company to assess the location of the prospective employee compared to the location of the outlet.

In recruiting employees, the management should also consider the accessibility and residence location of the applicants to support the productivity of the company. The considerations are also applying in the employee rotation process. Placement process should prioritize from smallest to the largest buffer area. If there is no outlet located in the area of the buffer that has been determined, it can be overcome by looking at the distance matrix of the shortest distance to the nearest existing store. Furthermore, this study also expected to provide information to employees regarding what public transportation is available near their place of residence to get to their workplace. Moreover, also, to increase the employee's sense of concern for the environment in Indonesia, especially big cities like in the Greater Jakarta area which is full of pollution

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