

## SWOT Analysis in MRT Jakarta

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**Abstract.** This study aims to determine the factors that are the strengths and weaknesses of the MRT in Jakarta, which factors are the opportunities and threats for the MRT in Jakarta, and how the MRT position is compared to other public transportation. The research design used is descriptive quantitative research, to measure the company's internal and external factors and their competitive profile. The data used in this study are primary data and secondary data. The conclusion of this study shows that the analysis of internal and external strength of the company produces an internal factor evaluation matrix (IFE) and an external factor evaluation (EFE) matrix and a competitive position matrix (Competitive Matrix Profile-CPM). The position of the Jakarta MRT when compared to its main competitors Transjakarta and Ojek Online is strong. Then, analyzing the position of the Jakarta MRT in the Matrix of Determining the Company's Position to win the passenger transportation business competition, located in the Quadrant I region, then, the most appropriate strategy to be implemented by the Jakarta MRT is Growth Oriented Strategy.

**Keywords:** SWOT analysis, MRT, public transportation, transjakarta

### 1. Introduction

The city of Jakarta as the capital city with an area of 664.01 km<sup>2</sup> and a population of 10,177,924 people has caused transportation in Jakarta to become increasingly crowded. The imbalance between the increase in the number of vehicles and roads is one of the causes of congestion in Jakarta. High community mobility is not matched by the government's ability to provide public transportation facilities and infrastructure. The poor quality of public transport, the low quality of services, the limited number of public vehicles, and the uncertainty of schedules are the reasons for most of the general public to be reluctant to use public transportation and prefer to use private vehicles. This is what makes congestion chronic. This is what drives the DKI Jakarta government to make public transportation and the MRT (Mass Rapid Transport) is a choice that is considered able to solve transportation solutions in Jakarta. The purpose of this study was to determine the position of the Jakarta MRT in the Position Determination Matrix so as to provide an overview of the position of the MRT as a transportation solution in Jakarta

### 2. Theoretical basis

#### *Strategy Management*

Strategy Management is two syllables, namely management and strategy. According to Harold Kontz and Cyril O'donnel (1980) in the journal [8] said that management is an effort to achieve a certain goal through the activities of others. Then, according to Atmosudirdjo (1986: 158) in the journal [4], in general the notion of management is control and utilization of all factors and resources according to a plan (planning), needed to achieve or complete a pre-objective (objective) or specific purpose. Another opinion according to James F. Stoner (in Umar, 2003, p.18) in a journal [32] management consists of the process of planning, organizing, mobilizing, and controlling. From the three opinions above, it can be concluded that management is an activity of controlling, utilizing, planning, organizing, and moving to achieve

a certain goal. This opinion is reinforced by the opinion of Terry (2015) in [15] states that management is a distinctive process consisting of actions: planning, organizing, mobilizing and monitoring carried out to determine and achieve the targets set through resource utilization humans and other sources.

The second syllable is the strategy, an understanding of the strategy proposed by Rangkuti (2004: 3) in [16], strategy is a tool to achieve the last goal. As with Strategy according to Jauch and Glueck (1999) in [31], strategy is defined as a unified, comprehensive and integrated plan that links the advantages of corporate strategy with environmental challenges and is designed to ensure that the company's main objectives can be achieved through company. After knowing the two meanings, it can be seen that the strategy is a planning tool to achieve the goals that are united, comprehensive and integrated so that the implementation is carried out appropriately.

So it can be concluded that, management strategy is a process of formulation, compiling, creating and monitoring existing strategies. This opinion is reinforced by the opinion of Thompson (2003) in [9] who argues that management strategies refer to managerial processes to form a strategic vision, objective development, the creation of strategies to realize and implement strategies and then make adjustments and corrections to the vision, strategic objectives and the implementation. Another opinion from Wheelen (2010: 105) in [5] according to him management strategy is a series of managerial decisions and activities that determine the success of the company in the long run. The activity consists of formulation / strategy, implementation and evaluation. (Summer et al., 1990) in journals [17] Strategic management research focuses on the relationship between strategy, environment, leadership / organization, and performance.

#### *Internal and External Factors*

According to David (2004) in the journal [26] identification of a company's internal factors can be done with a functional approach covering aspects of finance, marketing, production / operations, human resources, information systems, general management and organizations, and research & development. While the external environment according to Kotler (1994) in [7] the external environment is the conditions that are outside the company and cannot be controlled by the company. These conditions include political, economic, social, legal and environmental conditions.

#### *SWOT analysis*

According to (Samejima, Shimizu, Akiyoshi, & Komoda, 2006) in [28] according to him SWOT Analysis is a method commonly used to analyze and position resources and environments throughout the organization: Strengths, Weaknesses, Opportunities and Threats. (Learned et al., 1965) explains in [12] that the SWOT Analysis dates back to the 1960s. In recent years, SWOT analysis has been seen as rather outdated and replaced by resource-based planning (Wenerfelt, 1984; Grant, 1991) and competency-based planning (Ulrich and Lake, 1990). According to (Gao and Peng, 2011) in [10] SWOT analysis gets its name from the assessment of Strength (S), Weakness (W), Opportunity (O), and Threat (T) faced by any industry, sector, company or organization .

Stacey (1993) in [29] describes the SWOT analysis as a list of organizational strengths and weaknesses as indicated by the analysis of resources and capabilities, plus a list of threats and opportunities identified by their environmental analysis. Stacey's statement is reinforced by a statement (Kajanus et al., 2004) in [18] that, SWOT Analysis helps to make decisions and can be used as a guide for strategic planning.

In addition, (Griffin, 2009; Pahl & Richter, 2007) in the journal [11] states, SWOT Analysis is a strategic planning tool that is widely used in Indonesia in the decision-making process. SWOT analysis provides useful information to identify key internal and external

factors that are important for achieving the intended purpose. In SWOT analysis, strengths or weaknesses are classified as internal parameters while opportunities and threats are classified as external situational parameters. (R.D. Hisrich & M.P. Peters, 1989) in [36] according to him know the strengths and weaknesses of mandatory internal because it is an important component of the strategic management process. The most popular model for situation analysis is SWOT Analysis according to (Rangkuti, 2009) in [25]. This method is used to analyze where the company's current position is (Ward, J & Peppard, J, 2002) in [34]. According to David (2009, p.327) in [32] said that SWOT analysis is beneficial for companies to help formulate corporate strategies and is an important matching tool that helps managers develop four types of strategies, namely SO strategies (power-opportunities), WO strategies (weaknesses-opportunities), ST strategies (strengths), and WT strategies (weaknesses)

### 3. Research Methods

According to Nazir (2003) in [13], the research method is a unitary system in research that consists of procedures and techniques that need to be implemented in a study. This study will analyze the SWOT MRT Analysis in Jakarta. The object of this research is PT MRT Jakarta as the operator of the MRT in Jakarta

The research design used was a qualitative descriptive study with PT MRT Jakarta which became the object. According to Silalahi (2009, p.27) in [33] descriptive research is a study that presents a detailed picture of a particular situation, social setting, or relationship. So it can be concluded that descriptive qualitative is qualitative data in the form of descriptive, in the form of oral words or writings about human behavior that can be observed such as opinions (Taylor and Bogdan, 1984) in [1] To obtain information from data sources, data collection methods The primary uses depth interviews with Jakarta MRT employees by observing and by source triangulation, which is a form of data collection in various data sources. then, for secondary data taken from journals, books, news and others.

### 4. Results and Discussion

Jakarta Mass Rapid Transit or PT MRT Jakarta is one of the Regional Government-Owned Enterprises (BUMD) owned by the DKI Jakarta Provincial Government which was established on June 17, 2008. In accordance with its business scope, PT MRT Jakarta is given a mandate to undertake business and construction of infrastructure and facilities MRT, operation and maintenance of Operation and Maintenance (O & M) MRT infrastructure and facilities, as well as property / business development and management at the station and surrounding area, as well as the depot and surrounding area.

#### *Conditions of the Company's Internal Factors*

Analysis of the company's internal factors is a stage to find out strengths and weaknesses in facing competition. The company's internal environment includes:

#### *Physical Resources*

Part of the construction of the Jakarta MRT line is an elevated structure that extends  $\pm$  10 km; from Lebak Bulus to Sisingamangaraja. From the route, there are 7 Elevated Stations, namely Lebak Bulus, Fatmawati, Cipete Raya, Haji Nawu, Blok A, Blok M and Sisingamangaraja. While the train depot was built in the Lebak Bulus area, adjacent to the Lebak Bulus initial / end station. All passenger stations and trails are built with elevated structures above the ground, while train depots are built on the ground (on ground).

Underground construction (Underground) The Jakarta MRT stretches  $\pm$  6 km, which consists of an underground MRT tunnel and six underground MRT stations, which consist of Senayan, Istora, Bendungan Hilir, Setiabudi, Dukuh Atas Station, Indonesia Hotel Roundabout Station. The underground construction method uses the EPB type Tunnel Boring Machine (Earth Pressure Balance Machine)

In addition to station infrastructure in the form of stations, the MRT Jakarta Railways System uses the latest signaling system in Indonesia by introducing a Communication Based Train Control (CBTC) signaling system, as defined in the IEEE 1474 standard in [2], Automatic Train Protection (ATP), as well as the Automatic Train Operation (ATO) and Automatic Train Supervision (ATS) functions. Then, implement a moving block system for regulating train travel. Besides having infrastructure in the form of stations and facilities, MRT Jakarta also has facilities, namely the MRT train. The Jakarta MRT uses an electric rail train produced by Sumitomo Corporation, Japan, in collaboration with Nippon Sharyo. The contract between PT MRT Jakarta and Sumitomo Corporation was signed on March 3, 2015 [19]. The KRL operated by MRT Jakarta uses an automatic railroad operating system with a total of 16 trains. One series consists of 6 units, which means the total is 96 train units. One train can carry 1,950 passengers inside.

#### *Financial Resources*

The MRT Development Project is funded by the Central Government and the Provincial Government of DKI Jakarta and is supported by Japanese Government loan funds through Japan International Cooperation Agency (JICA). JICA support is provided in the form of loans to provide development funds. The commitment that JICA has given is ¥ 125,237,000,000, - while the loan agreement given is ¥ 50,019,000,000, - consisting of Loan Agreement No. IP-536 for ¥ 1,869,000,000, - and Loan Agreement No. IP-554 for ¥ 48,150,000,000, - and Loan Agreement No. IP-571 for ¥ 75,218,000,000. The JICA loan funds received by the Central Government were sent to the DKI Jakarta Provincial Government [20].

#### *Human Resources*

Covered by CNN Indonesia, Jakarta Governor Anies Baswedan said the presence of Jakarta's first mass rapid transit (MRT) succeeded in absorbing 253,553 workers involved. Hundreds of thousands of workers were involved in the construction process until the operation.

According to him, this number does not include 546 employees of PT MRT Jakarta. In fact, he estimates that the amount of labor absorbed by the transportation infrastructure will increase with the second phase of development plans. Specifically for operations, Anies said, the newest transportation mode in the capital city has prepared 71 drivers and 350 operational personnel for daily monitoring and maintenance [35].

#### *Technology Resources*

The technological infrastructure that includes physical and non-physical activities includes signaling and operating systems, rail structures and types, platform screen doors, and tunnel drilling machines (tunnel boring machines). The use of this technology is expected to be able to realize the services expected by the community. In its development, the company will continue to update information about the technology used by PT MRT Jakarta [23].

#### *Organizational Resources*

The organizational structure of PT MRT Jakarta for Directors is led by a President Director who is assisted by Operation & Maintenance Director, Construction Director, Business Development & Support Director and Finance & Administration Director. Then, for the Board of Commissioners section filled by the President Commissioner and Commissioner [22].

#### *Productivity*

Covered by the Jakarta MRT, According to an analysis of the realization of train travel during the period of 1-26 May 2019, the achievement of the timeliness of the Jakarta MRT train showed an average rate above 99.9 percent. Timeliness consists of three aspects, namely the accuracy of travel time reaches 99.95 percent; the accuracy of the arrival time between stations reaches 99.92 percent; and the timeliness of stops at each station reached 99.93 percent. These

results are obtained from the analysis of workday operating patterns (weekdays) and weekend operating patterns (weekends). The weekdays operating pattern starts at 5:00 a.m. until 24:00 IWST every Monday to Friday with the interval between departures between trains at busy times every five minutes and 10 minutes outside of busy time with operational 14 train sets (285 trips per day). While the weekend operational pattern uses seven sets of trains with a departure interval of every 10 minutes (219 trips per day) starting at 05.00 to 24.00 WIB.

From the aspect of the number of users or ridership, the average number of daily passengers of Jakarta MRT reaches 80 thousand people per day with HI Roundabout Station, Dukuh Atas BNI, and Lebak Bulus Grab which shows the highest usage graph from other stations. Jakarta MRT targets at the end of this year to get daily passengers of 100 thousand people per day [24].

#### *Conditions of the Company's External Factors*

The external environment of the company is an environment that is outside the organization. This environment includes micro and macro environments. The company's external environment includes:

#### *Competitor*

Competitive Profile Matrix (CPM) identifies the company's competitors and the strengths and weaknesses of each company associated with the company's strategic position. The weight given in the CPM matrix has the same meaning as the EFE matrix. The factors included in the CPM include the critical factors for the success of a public transportation that is effective and efficient. Adapaun effective and efficient transportation services based on opinions (Raharjo adisasmita and Sakti adji sasmita, 2011; 25) in [6] include: a) Current or Fast (speed), b) Congratulations or Safety (c) Capacity (Capacity) ), d) Frequency (frequency), e) Order (Regularity), f) Comprehensive (Comperhensive), g) Responsible (Responbility), h) Low Cost (Acceptable) or Affordable price and i) Comfortable (Comfort )

The main competitor of PT MRT Jakarta is PT Transportasi Jakarta and Ojek Online which has the same route as PT MRT Jakarta which has the Bundaran HI - Lebak Bulus route. The competition profile matrix is presented in the table as follows:

Critical Factors of Success	Weight	Public Transportation in Jakarta					
		MRT		Ojek Online		Transjakarta	
		Rating	Score	Rating	Score	Rating	Score
Speed	0,1	5	0,5	4	0,4	3	0,3
Safety and Safety	0,1	4	0,4	2	0,2	4	0,4
Capacity	0,05	4	0,2	2	0,1	3	0,15
Frequency	0,1	4	0,4	4	0,4	4	0,4
Regularity	0,05	4	0,2	2	0,1	3	0,15
Comprehensive	0,05	3	0,15	4	0,2	3	0,15
Responsibility	0,1	3	0,3	2	0,2	3	0,3
Rates	0,25	2	0,5	3	0,75	5	1,25
Convenience	0,2	4	0,8	2	0,4	3	0,6
Total	1,00		3,45		2,75		3,7

Table 1. Competition Profile Matrix

In Table 1 above, it can be illustrated that the critical success factors of each competitor consist of speed, safety and security, capacity, frequency, orderliness, comprehensiveness, responsibility, tariff, and comfort.

If you see the position of Transjakarta compared to its competitors, the Jakarta MRT and Ojek Online, Transjakarta has the highest score, with a total score of 3.70. MRT Jakarta is in second place with a total score of 3.45 and the last Ojek Online with a total score of 2.75. This total score indicates that Transjakarta has the strongest position compared to the two competitors. While in reality, the mastery of Speed, Comfort and Capacity that can be served by Transjakarta is under the Jakarta MRT but is better than Ojek Online.

#### *Government*

Covered by Tribunnews.com, Head of the Jabodetabek Transportation Management Agency (BPTJ), Bambang Prihartono mentioned four further policies that the government needs to do to optimize Jakarta MRT services. First, related to the integration between MRT and feeders as feeder transport. According to him, in order to run optimally, MRT services must be supported by mass public transportation that is easily accessible to the public either to continue the journey after using the MRT or vice versa to the nearest MRT station. Second, the MRT also needs to integrate its payment system with other transportation capital. That way, the community can only use one means of payment for the use of all capital. Third, another policy needed to encourage optimization of the use of MRT is the limitation of private vehicle use. For this reason, Bambang Prihartono hopes that the DKI Jakarta Provincial Government seeks to immediately realize the implementation of the ERP (Electronic Road Pricing) policy. Fourth, Bambang assessed the need to provide facilities that could support and be adequate for pedestrians [3].

#### *Environment*

KLHK presents data from one of the PM 2.5 air quality monitoring stations in Jakarta which shows that the annual average is at 34.57 ug / m<sup>3</sup>. While RI Government Regulation No. 41 of 1999 sets PM 2.5 annual quality standards at 15 ug / m<sup>3</sup>. This means that the annual average recorded by the monitoring station clearly indicates a serious pollution problem in Jakarta.

Number of days of air quality based on PM index 2.5. It was revealed that during 2018 there were 34 days where air quality was classified as "Good", 122 days where air quality was classified as "Medium", while 196 days when air quality was classified as "Unhealthy". The data presented by KLHK supports the report released by IQ Air Visual in collaboration with Greenpeace Southeast Asia last week which exposed air quality in cities around the world. In the report stated that Jakarta was ranked number one with the worst 2.5 PM in Southeast Asia throughout 2018 [14].

#### *Demographics*

Judging from the age structure, the population of Jakarta has led to the "old population", meaning that the proportion of "young people" namely those aged 0-14 years has begun to decline. If in 1990 the proportion of young people was still 31.9 percent, in 2006 this proportion decreased to 23.8 percent. During 2002-2006, the proportion of young people was relatively stable, which was around 23.8 percent. In contrast, the proportion of the elderly population (65 years and over) rose from 1.5 percent in 1990, to 2.2 percent in 2000. In 2006, the proportion of the elderly population increased to 3.23 percent. The increase in the elderly population reflects an increase in the average life expectancy, which is from 72.79 years in 2002 to 74.14 years in 2006 [27].

#### *Economy*

Covered by liputan6.com, Beginning in 2019, Bank Indonesia reported that the economy of DKI Jakarta grew high above 6 percent, indicating the momentum of the capital's economic growth. The realization of economic growth in the first quarter of 2019 reached 6.23 percent (yoy). Despite growing slower than the previous quarter of 6.41 percent (yoy), the growth rate

was higher than the first quarter growth rate of the previous three years which amounted to 6.06 percent (yoy), as well as national growth which amounted to 5.07 percent (yoy).

The continued high economic growth at the beginning of 2019 was mainly contributed by a very significant export growth which reached 43.09 percent (yoy), especially in inter-regional exports, amid declining performance of foreign exports. In line with this, imports grew by 9.58 percent (yoy) which is also driven by imports between regions in the form of basic needs of the community [30].

#### Law

As a BUMD, the Company is required to comply with all applicable regulations relating to business permits and environmental management. Such regulations include: Law Number 32 of 2009 (concerning Environmental Protection and Management), Government Regulation Number 27 of 2012 (concerning Environmental Permits), DKI Jakarta Governor Regulation Number 157 of 2013 (concerning Environmental Permits), including, and the most important, Amdal. Amdal provides the basis for the Company to carry out the entire MRT project development process in Jakarta, specifically related to underground construction [21].

#### SWOT identification

This analysis comes from evaluating internal factors using the IFE matrix and evaluating external factors using the EFE matrix. Based on the results of data collection, the results of the analysis of internal and external factors of PT MRT Jakarta are as follows:

NO	Internal Strategic Factors	Rating (a)	Weight (b)	Score (axb)
Power				
1	Physical Resources (Path Form, Station Form and Signaling System)	4,7	0,13	0,611
2	Technology Resources (Facility and Infrastructure Facilities)	3,8	0,18	0,684
3	Organizational Resources (Complete and clear organizational structure)	3,2	0,08	0,256
4	Travel time accuracy	4,7	0,12	0,564
5	Services that provide convenience to consumers	3,4	0,11	0,374
TOTAL				2,489
Weakness				
1	Financial Resources (Capital using a loan agreement from JICA)	3,5	0,05	0,175
2	Human Resources (Loyalty, Experience, Training, and Commitment)	3,2	0,06	0,192
3	Limited travel routes	4,4	0,15	0,66
4	Rates are quite expensive	3	0,07	0,21
5	Passengers are less educated	3,6	0,05	0,18
TOTAL			1,00	1,417
TOTAL STRENGTH AND WEAKNESS				3,906
STRENGTH TO WEAKNESS				1,072

Tabel 2. Matriks IFE

NO	External Strategic Factors	Rating (a)	Weight (b)	Score (axb)
Opportunity				

1	Zero pollution public transportation	3,1	0,09	0,279
2	The growing economic conditions in Jakarta	4	0,13	0,52
3	The government provides advanced policies to optimize the MRT	5	0,21	1,05
4	Licensing and EIA in accordance with regulations	3	0,11	0,33
TOTAL				2,179
Threat				
1	Patterns and lifestyles of Jakarta people who like to use private vehicles	4,6	0,23	1,058
2	New player in the public transport market in Jakarta	4,1	0,12	0,492
3	Competitors can offer more attractive offers (easily accessible locations, efficient and attractive services, and can do door-to-door services)	3,2	0,11	0,352
TOTAL			1,00	1,902
TOTAL OPPORTUNITIES AND THREATS				4,081
OPPORTUNITIES FOR THREATS				0,277

Table 3. EFE Matrix

Based on Table 2 and Table 3 above, it can be seen that internal factors are quite high at (3,906), this is obtained based on the total strength of (2,489) and the weakness factor of (1,417), with a strength factor higher than the weakness factor. From the data above, it can be concluded that developing strength factors can minimize weaknesses. And based on the table it can also be seen that external factors are quite high, which is equal to (4,081), this is obtained from the total number of opportunities of (2,179) and the threat factor of (1,902), with opportunity factors higher than threat factors. The conclusion that can be drawn is, opportunity factors can overcome the threat factor.

After the total score on each factor is known, then the position of the company quadrant can be known by using the Positioning Matrix as follows:

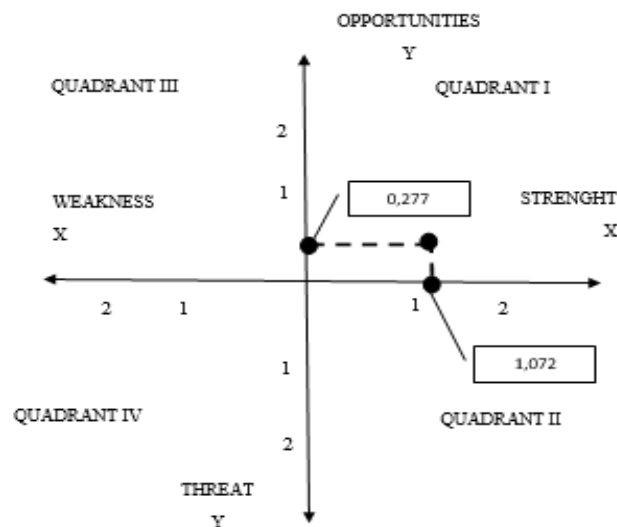


Figure 1. Positioning Matrix



From the picture above, it can be seen that the company has good internal factors with strength better than the existing weaknesses. In line with that, the Jakarta MRT also has good external factors with opportunities that are better than the threats faced by the company.

Thus, the company not only has the ability to sustain life, but also is able to exploit the potential and opportunities to develop so that it can achieve excellent performance and business performance in the field services through the MRT. This is a favorable situation for the company, and the strategy that must be applied in this condition is to support an aggressive growth policy (Growth Oriented Strategy) in order to improve service quality at PT MRT Jakarta.

## 5. Conclusion

- Analysis of the company's internal and external strengths produces an internal factor evaluation matrix (IFE) and an external factor evaluation (EFE) matrix and a competition position matrix (Competitive Matrix Profile-CPM). The position of the Jakarta MRT when compared to its main competitors Transjakarta and Ojek Online is strong with a score of 3.45.
- Internal factors in the Jakarta MRT using IFE synthesis tables show that the internal factor is quite high (3,906), this is based on the total number of forces (2,489) and weaknesses of (1,417), in other words the strength factor is higher than the factor weakness. In short and firmly it can be said, that by developing strength factors can minimize weakness factors. Furthermore, the external factors on the Jakarta MRT are carried out using the EFE synthesis table stating that the total external factors are quite high, namely (4,081), this is obtained from the total number of opportunities (2,179) and the threat factor of (1,902), so the opportunity factor higher than the threat factor. Then, analyzing the position of the Jakarta MRT in the Matrix of Determining the Company's Position to win the passenger transportation business competition, located in the Quadrant I region, then, the most appropriate strategy to be implemented by the Jakarta MRT is Growth Oriented Strategy or SO Strategy.

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