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Financial Feasibility Analysis of Perum Damri Serang Branch Business Study on the National Strategic Tourism Area Transportation Routes Tanjung Lesung and Sawarna

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ABSTRACT
This study aims to conduct a financial feasibility study of Perum DAMRI's business in the Serang branch with a focus on the transportation routes of Tanjung Lesung and Sawarna national tourism strategic areas. The study combines cost analysis, economic benefits, and financial aspects to evaluate DAMRI's operational performance on these routes. Through cost analysis, it was found that several factors such as vehicle operating costs, fuel, terminal levies, and tire replacement costs have an impact on DAMRI's profit margin. Furthermore, the economic benefit analysis shows that DAMRI can make a positive contribution to the national tourism area by providing better transportation access, but the results still need to be improved.However, when looking at the financial aspects, the two-year Net Present Value (NPV) analysis shows that DAMRI incurred losses in this project. A negative NPV, especially with a discount rate of 12.5%, indicates that the project did not achieve financial viability within the first two years of operation. However, the Internal Rate of Return (IRR) analysis reveals that the project has the potential to generate profitable returns, with an internal rate of return of approximately 13.68%. This suggests that if DAMRI can maintain or improve its operational efficiency, the project has the opportunity to be financially successful in the future. In conclusion, from various analysis perspectives, including BCR, NPV, and IRR, this DAMRI route business is currently not achieving the expected financial viability. Therefore, effective strategies and efforts are needed to ensure the viability and sustainability of DAMRI's operations on this route. Strategic measures could include improving operational efficiency, monitoring and controlling costs, and improving service management. More specific suggestions could involve improvements in cost management, fleet renewal, increased tourism promotion, cooperation with related parties, and the development of services that better suit passenger needs. With concerted efforts, DAMRI can maximize its business potential in Tanjung Lesung and Sawarna tourism areas and achieve better financial viability.

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INTRODUCTION

Public transportation within the city plays an important role as a means of mobility for city residents to connect with each other in their activities. The involvement of residents in being able to own private vehicles due to the relatively high cost of vehicles and operating expenses makes public transportation an alternative that can be chosen and utilized by the community, as public transportation is cheaper and more flexible. Government policies to create a reliable yet affordable public transportation service are highly anticipated due to the community's significant dependence on public transportation needs.

In Tanjung Lesung and Sawarna, two strategic national tourism areas located in Indonesia, the importance of transportation is becoming increasingly prominent. This area has a very high potential for marine and beach-based tourism, as well as various other tourism clusters such as cultural, natural, and artificial tourism. Along with the growth of tourism and the economy in this area, the mobility of the community and tourists has become increasingly important. Banten is one of the provinces with great potential to become a major destination in the field of tourism.

Based on information collected by the Department of Tourism, Arts, and Culture of Serang City, in 2020, the number of domestic tourists visiting tourist locations in Serang City reached 19,153,676 people, and 144 foreign tourists. The tourism sector has a significant positive impact on the economy of Banten Province. This can be seen from the growth in the number of companies supporting the tourism sector as well as the continuously increasing job absorption in the tourism industry. From the data on the number of domestic guests in Serang Regency, it can also be seen

The Tanjung Lesung Tourism Special Economic Zone (KEK) was inaugurated on February 23, 2015, by President Joko Widodo. PT. Jababeka Tbk, which acquired PT. Banten West Java Tourism Development Corporation, is responsible for the management of this Special Economic Zone (KEK). With a world-class destination concept, Tanjung Lesung offers natural beauty, beaches, underwater life, and various other tourist attractions.DAMRI Corporation, previously known as Djawatan Angkoetan Motor Repoeblik Indonesia and now simply known as DAMRI, plays an active role in the land transportation sector in Indonesia. The existence of this company was formalized through the Decree of the Minister of Transportation of the Republic of Indonesia No. 01 dated November 25, 1946, as announced through Announcement DAMRI/46 which established its agency status. The declaration established DAMRI's responsibility as an agency tasked with transporting passengers and cargo on land routes, including the implementation of electric vehicles.

As the company evolves towards the status of a Public Company (Perum), DAMRI's identity is increasingly conceptualized as a robust corporate brand entity. Until now, DAMRI has played a strategic role as the provider of passenger and freight transportation services using buses and trucks. The scope of DAMRI's services covers the entire territory of the Republic of Indonesia, including the intercity, interprovincial, airport, tourism, logistics, exploitation, and border transportation sectors. As part of the initiative to support the National Strategic Tourism Area (KSPN) in Indonesia and improve community accessibility, DAMRI

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operates the Rangkasbitung Station-Sawarna Beach route service in Lebak Regency, Banten. On the other hand, DAMRI also contributes to supporting the tourism sector in the Special Economic Zone (SEZ) of Tanjung Lesung, Pandeglang Regency, by providing a fleet that connects Soekarno Hatta Airport with Tanjung Lesung.

Given the transportation issues, it is deemed necessary to conduct a financial feasibility analysis to assess the viability of the transportation business. With this study, it is hoped that it can provide input to the Ministry of Transportation as the regulator, to determine the appropriate steps to improve transportation service quality and provide an overview or information to Perum Damri, which will invest its capital in the transportation sector of the national strategic tourism area.

The selection of the Tanjung Lesung and Sawarna routes in the context of the financial feasibility study of Perum DAMRI Serang Branch is due to several important factors. Firstly, Tanjung Lesung and Sawarna are two significant tourist destinations in Indonesia with very high tourism potential. Secondly, these areas offer natural beauty, beaches, and various other tourist attractions. With the growth of tourism in this area, the mobility of the community and tourists becomes increasingly important, and public transportation services can play a role in supporting the growth of the tourism sector. The second factor is that Tanjung Lesung is one of the National Tourism Strategic Areas (KSPN) designated in the National Tourism Development Master Plan. (RIPPARNAS). Therefore, the development of this area has become a government priority in supporting the national tourism industry. Perum DAMRI plays an important role in supporting the accessibility and mobility of tourists in KSPN areas such as Tanjung Lesung.

The third factor is that affordability and accessibility are key factors in tourism development. Opening good accessibility through public transportation services can increase the number of tourist visits to Tanjung Lesung and Sawarna. This can benefit the economic and social development in the region. The fourth factor is that as part of the efforts to improve public transportation services in Tanjung Lesung and Sawarna, the researcher wants to assess the financial feasibility of the Serang Branch of Perum DAMRI's operations on that route. In this case, the research aims to evaluate whether DAMRI's operations on the Tanjung Lesung and Sawarna routes can provide adequate profits and whether this investment is sustainable.

METHOD

Solimun & Fernandes (2018) stating that exploratory research, descriptive research, and explanatory research are three types of research that have developed in accordance with the evolution of human cognition. Menurut Sugiyono (2017), The quantitative approach is "a research methodology based on positivist philosophy used to study a specific population or sample. This approach involves data collection using research instruments, quantitative data analysis or data in statistical form, as well as making predictions and observations regarding its implications."

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Sugiyono (2017) describing that research conducted on both large and limited population groups implies the collection of data from a sample considered to represent the entire population. The main objective of this research is to identify relative occurrences, distribution, and correlations between variables that may arise in the context of that population. Sugiyono (2017), in detail explains that the quantitative research methodology, which is based on the philosophy of positivism, involves conducting surveys on specific samples or populations, applying research instruments to collect data, and applying quantitative or statistical analysis. This method is used with the aim of testing the previously stated hypothesis, in accordance with the assumption that the predicted data can be tested for its validity. Therefore, it can be concluded that this research generally utilizes a quantitative approach, without requiring experimental stages in its implementation.

RESULTS AND DISCUSSION

Investment Feasibility

Investment is the act of allocating funds with the aim of obtaining profit. The variety of assets that can be the subject of investment involves various things, such as energy, time, money, land, machinery, equipment, stocks, and mutual funds. In practice, investment decisions can be based on various factors, including risk, potential returns, and long-term financial goals. By understanding diversification and risk management, investors can create a balanced portfolio to achieve their investment goals.(Nino, 2016).

Investment is one of the aspects in planning, particularly in the financial realm, that plays an important role in long-term decision-making, aimed at achieving sustainable profits. Menurut Mulyadi (2001) In his book titled "Management Accounting: Concepts, Benefits, and Engineering," investment is the use of sustainable ownership resources with the aim of obtaining profit. Essentially, investment is the allocation of current funds with the goal of achieving future gains. (Halim, 2005).

1. Types of Investments

   In the book Mulyadi (2001) entitled "Management Accounting: Concepts, Benefits, and Engineering", there are four types of investments, namely:

   1. Non-profit investment: This type of investment is made by companies as an obligation based on government regulations or contract terms that have been agreed upon. In this type of investment, profit or loss considerations are not the main factor.
   2. Investment with difficult-to-measure profits (non-measurable profit investment): The goal of this investment is to increase profits, but the company finds it difficult to precisely calculate how much profit will be obtained from this investment. For example, research costs.
   3. Replacement investment: This type of investment is categorized as expenditures made by the company due to the replacement of machines and equipment that were originally available.

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4. Investment for business expansion (expansion investment): This type of investment involves expenditures for the expansion of operations and business carried out by the company along with the expansion of production capacity.

2. Cash Flow

According to the Indonesian Institute of Accountants (2009) in the book "Statement of Financial Accounting Standards (PSAK) Number 02 Cash Flow Statements (Revised 2009)", the cash flow statement is a financial report that contains information about how cash is affected by operational activities, investment transactions, and financing activities, as well as the net changes in a company's cash position over a period. Additionally, this report serves as a record of cash inflows and outflows. For example, cash flows from transactions such as the sale of equipment are recorded under investment activities. Conversely, cash flows obtained from gains and losses from various transactions are calculated as cash flows from operating activities.

3. Benefits of Investment Feasibility

Investment feasibility analysis is a process conducted by investors to assess whether an investment has the potential to be profitable or not. In the book "Feasibility Study of Projects and Business Investments", Haming & Basalamah (2010), feasibility studies have several main benefits:

1. Helping optimize the cash flow for potential investors.
2. Reducing risks and increasing the likelihood of investment success.
3. Identifying and measuring investment alternatives objectively to support fact-based decisions.
4. Thoroughly revealing investment aspects to ensure comprehensive consideration in accepting or rejecting investment alternatives.

   In addition to those main benefits, there are also several secondary benefits from the project feasibility study:

   1. Investor funds are allocated to the most profitable projects, which in turn increases the efficiency of national resource use.
   2. Investment is made in sectors that produce goods or services that are highly needed by the community, so that the community can meet their needs from these business products.
   3. Funds are channeled to sectors that contribute to foreign exchange savings because the projects use local raw materials, and if the projects are export-oriented, this can increase the country's foreign exchange earnings.

4. Investment Feasibility AspectInvestment Feasibility Aspects

In the book "Feasibility Study of Project and Business Investment", Haming & Basalamah (2010) explaining that the feasibility study includes several aspects that need to be considered, among them:

1. The financial aspect is very important in feasibility analysis. If the finances are not favorable, the proposal can be rejected. Financial studies involve:
   a. Assessment of the funds needed for investment and working capital.

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b. Evaluation of funding sources and calculation of the cost of capital.
c. Cash flow projections for financial feasibility analysis using methods such as Payback Period, Net Present Value, Profitability Index, and Internal Rate of Return.
d. Preparation of financial statements with analysis of sources and uses of funds, as well as the break-even point.

2. The Economic and Social Aspect assesses the positive impact of investment on the economy and the community around the company, with evaluation from a local to a national perspective.
3. Market and Marketing Aspects The study of market and marketing aspects involves analyzing the potential revenue (cash inflow) during the company's operational period.
4. Technical and Production Aspects The technical and production aspects relate to the company's capacity, design, location, and other strategic technical aspects.
5. Legal Aspects This study must address legal issues, agreements, industrial relations, business licenses, company status, and other related matters.
6. Organizational and Management Aspects The organizational and management aspects encompass the planning of the organizational structure, duties and responsibilities, as well as work processes within the company.

Investment Feasibility Analysis Method

Investment is evaluated through various approaches with their advantages and disadvantages. As described by (Nino, 2016), there are four common methods to evaluate investment feasibility, namely Profitability Index (PI), Payback Period (PP), Net Present Value (NPV), and Internal Rate of Return (IRR). Investment feasibility assessment methods can be categorized into two, namely non-discount methods and discount methods. Non-discount methods include payback period and accounting rate of return. On the other hand, discount methods involve net present value, internal rate of return, and profitability index. Investment evaluation through these methods provides a comprehensive picture by considering the aspects of time and the value of money.

Investment feasibility analysis is a process that helps investors thoroughly evaluate the potential of a project or investment. The purpose of this analysis is to determine whether the investment has profitable prospects or not. Additionally, this analysis also helps investors estimate the extent of the return or profit that can be expected in the future. If the analysis results show that the investment is not suitable or even potentially harmful, investors can consider safer investment alternatives. There are various investment valuation methods used by experts, which cover various aspects such as the amount of initial capital required, the cash flow generated, the discount rate or rate of return, and the investment period.

Investment feasibility analysis involves several methods that are commonly used to evaluate potential profits and risks. Payback Period provides an overview of the time required to recover the investment capital. Net Present Value measures the current value of profits after considering the time value of money. The Internal Rate of Return determines the interest rate that makes the net present value zero. The Average Rate of Return provides an indication of the average return rate over the investment period. The Profitability Index compares the

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net present value with the initial investment. The Discounted Payback Period is similar to the payback period, but it takes into account the time value of money. While Return On Investment (ROI) measures investment efficiency by comparing profits with investment costs. By using this combination of methods, investment analysis can provide a comprehensive view of the potential investment returns and the associated risks.

1. Metode Non-Diskonto

   The non-discounting method is a way to assess the feasibility of an investment without considering the time value of money. Below is one of the non-discounting methods:

   a. *Payback Period*)

      The payback period method is a fairly simple approach to evaluating investments. The payback period is used to calculate how long it takes for the initial investment to be recouped. The shorter the payback period, the more feasible the investment. The formula used to calculate the payback period is according to Sutrisno (2017) in his book titled "Financial Management, Theory, Concepts, and Applications", namely:

$$Payback\ period = \frac{Investment\ value}{Net\ Cash\ Incoming} \times 1year$$

      From the formula above, it can be seen that this method is relatively simple and prioritizes investments that generate quick cash flows. (Nino, 2016). The payback period method has its advantages and disadvantages. One of its advantages is its simplicity and ease of calculation, as well as its consideration of risk aspects. However, there are also weaknesses in this payback period method, namely that it does not take into account the time value of money and does not provide information about investment performance after the payback period.

   b. *Accounting Rate of Return*

      The Accounting Rate of Return is a method for evaluating an investment by measuring the average annual net profit generated by that investment. The goal is to provide investors with an overview of the potential income they can expect during the investment period.

      The formula for calculating the accounting rate of return is according to Sutrisno (2017) in his book titled "Financial Management, Theory, Concepts, and Applications," namely:

$$ARR = \frac{Average\ profit}{Initial\ investment\ or\ average\ investment}$$

      If this Rate of Return is higher, then it can be considered that the investment is profitable. This method has the advantage of its simplicity and its ability to account for profitability over the return period.

      If this Rate of Return is higher, then it can be considered that the investment is profitable. This method has the advantage of its simplicity and its ability to account for profitability over the return period.

2. Discount Method

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Metode diskonto merupakan suatu pendekatan dalam menilai kelayakan suatu investasi dengan memperhitungkan faktor nilai waktu uang. Berikut adalah beberapa metode diskonto yang umumnya digunakan:

a. *Net Present Value* (NPV)

Net Present Value (NPV) or Net Present Value is a method for evaluating investment profitability. NPV calculates the difference between the present value of cash flows to be received in the future and the present value of cash flows to be expended during the investment period. This approach helps determine whether the investment yields a positive or negative net gain, taking into account the time value of money.

The formula used to calculate NPV is according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$NVP = \left(\sum_{t-1}^{n} \frac{CF_t}{(1+i)^t}\right) - I_0$$

Where:

NVP = *Net Present Value*
CFt = cash flow per year in the period t
I = initial investment
t = Time Period
i = discount rate

The criteria for decision-making using the NPV method are as follows :

1) If NPV > 0, then the investment is considered feasible and profitable because it shows that the investment can cover the cost of capital and generate returns above the initial investment and cost of capital.
2) If NPV = 0, then the investment can be accepted or rejected, as it has the same impact on the company. This means the investment can cover the initial investment and cost of capital.
3) If NPV < 0, then the investment proposal is rejected because it is considered unprofitable for the company.

The NPV method has the advantage of being an accurate valuation method and explicitly considers the desired rate of return from the investment. However, this method also has drawbacks due to its complex calculations and the difficulty in determining the appropriate interest rate.

b. *Internal Rate of Return* or IRR

It is an investment evaluation method that determines the interest rate that makes the Net Present Value (NPV) of the investment cash flows equal to the present value of the investment costs. In other words, IRR is the interest rate at which the project does not generate a net profit or loss. The formula used to calculate IRR is according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$I = \frac{\sum CF_t}{(1+i)^t}$$

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Where :

I = initial investment (present value of the object)
CF = cash flow received in period t (with t-1...n)
i = return or discount rate
t = time period

The IRR method has two main assumptions:

If the IRR rate is greater than the expected interest rate, then the investment is considered feasible and profitable.Jika tingkat IRR lebih kecil daripada tingkat bunga yang diharapkan, maka investasi dianggap tidak layak dan merugikan.

a. The Internal Rate of Return (IRR)

method has significant advantages in investment project evaluation. Its main advantage lies in its ability to account for cash flows occurring during the project's duration, thereby providing a more comprehensive picture of investment profitability. Additionally, IRR is also considered easier to interpret in determining the internal rate of return (IRR) compared to Net Present Value (NPV). This advantage makes the IRR method an effective and more user-friendly investment evaluation tool in business decision-making.

b. *Profitability Index* atau PI

Profitability Index (PI) is used to compare the present value of future cash flows with the current value of the investment. PI is the ratio of the present value (PV) of incoming cash flows to the PV of outgoing cash flows. Thus, this method provides an overview of the potential investment returns by considering the time value of money.

The formula for the Profitability Index (PI) is according to Sutrisno (2017) in his book titled "Financial Management, Theory, Concepts, and Applications", namely:

$$PI = \frac{PV\ of\ cash\ flow}{investasi}$$

This method assumes that if the PI value is greater than 1, the investment is considered profitable, whereas if the PI value is less than 1, the investment is considered unprofitable.

3. *Return On Investment* (ROI)

According to Sutrisno (2012), Return On Investment (ROI) is a comparison that shows the company's ability to generate profits to cover the initial investment. ROI is calculated using a specific profitability formula, as explained by Rudianto (2013) in his book titled "Management Accounting Information for Strategic Decision Making" which states:

$$ROI = \frac{Laba\ bersih}{Total\ aset} \times 100\%$$

ROI can be adjusted to specific circumstances and is highly dependent on the factors considered as returns and costs. The calculation of ROI has a high degree of flexibility, depending on what is intended to be measured or what is intended to be shown to its users.

In evaluating the production feasibility of a business, there are several aspects in production analysis that entrepreneurs need to pay attention to. These aspects help in

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assessing whether the business to be run has adequate feasibility. Several elements in the production/operational aspects that must be analyzed are as follows:

1. Operational Location: The selection of an operational location is an important aspect in a business organization. A strategic and productive location needs to be considered for both the organization itself and the interests of the customers. Factors that need to be considered include proximity to suppliers, customers, transportation facilities, or even a position that benefits all three. In addition, the business location must also be attractive to customers so that they remain loyal.
2. Production Capacity: The production volume must be relevant and appropriate to demonstrate business potential and meet existing demand. When making projections, it is important not to overlook realistic production needs to avoid excessive or insufficient production capacity issues. Unreasonable work volume can lead to production cost issues that can affect the selling price of the product.

Investment Feasibility Criteria There are several criteria that are generally used to assess the feasibility of an investment, as explained by Kadariah *et al*. (1999):

1. *Net Present Value* (NPV)
   According to Kadariah *et al*. (1999), *Net Present Value* (NPV) is the difference between the present value of benefits (PV Benefit) and the present value of costs (PV Cost) or the difference between the present value of investment and the present value of net cash inflows in the future. If the NPV is negative, then the investment is considered unprofitable (usually rejected). However, if the NPV is positive, then the investment is considered profitable. (usually accepted).
2. Net Present Value (NPV) formula according to Suratman (2001) in his book entitled "Project Feasibility Study: Techniques and Procedures for Report Preparation", namely:

$$NPV = \sum_{t=1}^{n} \frac{Bt - Ct}{(1+i)^t}$$

Explanation :

Bt = Gross benefit/Benefit for the year t
Ct = Gross cost in the year t
n = Economical
i = Applicable bank interest rate
t = Year

3. *Net Benefit Cost Ratio* - BC Ratio
4. According to Kadariah *et al*. (1999) explaining that the Net Benefit-Cost Ratio (BC Ratio) is the comparison between the present value of positive net benefits and the present value of negative net benefits (net costs). If the BC Ratio is greater than 1 (one), then the investment is acceptable. However, if the result is less than 1 (one), then the investment is considered unacceptable. (causing losses).

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The formula used in the calculation of the BC Ratio according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$BC\ Ratio = \frac{\sum_{t=1}^{n} \frac{Bt}{(1+i)^t}}{\sum_{t=1}^{n} \frac{Ct}{(1+i)^t}}$$

Explanation :

Bt = Gross benefit/Benefit for the year t
Ct = Gross cost in the year t
n = Economical
i = The prevailing bank interest rate
t = Year

5. *Internal Rate of Return* - IRR

According to Kadariah *et al*. (1999), The internal rate of return (IRR) is the discount rate that makes the net present value (NPV) equal to 0 (zero) or results in a B/C Ratio = 1. (satu). In this IRR calculation, it is assumed that each annual net benefit is automatically reinvested in the following year at the same return rate as previous investments. If the IRR is greater than the social discount rate, then the investment is acceptable (profitable). However, if the IRR is less than the social discount rate, then the investment is considered unprofitable.

The IRR formula used according to Suratman (2001)) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation" is :

$$IRR = I` + \frac{NPV`}{NPV` - NPV``}\ (i`` - i`)$$

Explanation :

i` = The initial interest rate when NPV is positive
i`` = The second interest rate when NPV is negative

6. Revenue Calculation

Revenue in the context of public transportation services refers to the total income obtained by vehicle owners over a specific period while providing services to users. This revenue includes all gross income, without distinguishing between deposits and direct payments to vehicle crews or drivers. Thus, this revenue encompasses all income obtained from vehicle operations over a certain period. To determine the revenue earned by the vehicle owner, it is necessary to first know the number of passengers per day and the applicable rates for each type of transportation user, namely the general passenger rate and the student rate.

The formula used to calculate the daily revenue of vehicles according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$Pdh = Pqh \times \mathrm{Tr}$$

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Where :

Pdh : Revenue per vehicle per day
Pqh : Number of passengers transported per day
Tr : Fare charged per passenger

For the formula used to calculate annual revenue according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$Pdt = Pdh \times 25 \text{ day } \times 12 \text{ Month}$$

Where :

Pdt : Revenue per vehicle per year
Pdh : Revenue per vehicle per day

7. Determining the Number of Fleets

In determining the initial data needed for the fleet size, the circulation time is obtained using the formula according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

CT ABA = (TAB + TBA) + (σ AB + σ BA) + (TTA + TTB)

Where :

CTABA = Circulation time from A – B back to A
TAB = Average travel time from A – B
TBA = Average travel time from B – A
σAB = Deviation of travel time A – B
σBA = Deviation of travel time B – A
TTA = Vehicle stop time at A
TTB = Vehicle stop time at B

The vehicle stop time at the origin or destination (TTA or TTB) is set at 10% of the travel time between A and B.

a. The time between vehicles is determined based on the formula according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$H = \frac{60 \times C \times Lf}{P}$$

Where :

H = Time interval
P = Number of passengers per hour in the busiest section
C = Vehicle capacity
Lf = Load factor

The number of circulation timekeeper fleets required is calculated using the formula according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$K = \frac{CT}{H \times FA}$$

Where :

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K = Number of vehicles
CT = Circulation time (minutes)
H = Headway (minutes)
FA = Vehicle availability factor (100%)

8. Assumptions Used

In the calculation of Vehicle Operating Costs (VOC), several assumptions serve as the foundation used. These assumptions involve factors that influence the calculation of operational costs, thereby providing a clearer picture related to the efficiency and sustainability of vehicle operations. The assumptions are as follows:

a. The economic lifespan of the vehicle is 5 (five) years;
b. The profit is taken at 10% per year from the price of a new vehicle;
c. Overhead is taken at 10% of the total fixed and variable costs;
d. The rates used are the flat rates currently in effect, such as the general passenger rate of Rp. 1,200.00 and the student passenger rate of Rp. 600.00;
e. The discount rate uses the current interest rate of 16%.
f. Demand is assumed to remain constant every day.
g. The amount of revenue decline is 5% of the initial investment;

Components of Vehicle Operating Costs (BOK),

Feasibility study analysis based on economic feasibility criteria, namely:

a. *Net Present Value* (NPV) according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$NPV = \frac{\sum Bt - Ct}{(1+i)^t}$$

Explanation:
NPV = Net Present Value
Bt = cash inflow or benefit in year t
Ct = cash outflow or cost in year t
i = interest rate
n = lifespan of the investment
t = Year
NPV > 0 (positive value), then the study is feasible to be conducted
NPV < 0 (negative value), then the study is not feasible to be conducted

b. *Benefit Cost Ratio* (BCR)

Benefit Cost Ratio used to evaluate the feasibility of a project by comparing total benefits to total costs that have been equated to the base year using the applicable discount rate.

The equation of this method according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report Preparation," namely:

$$BCR = \frac{B}{C}$$

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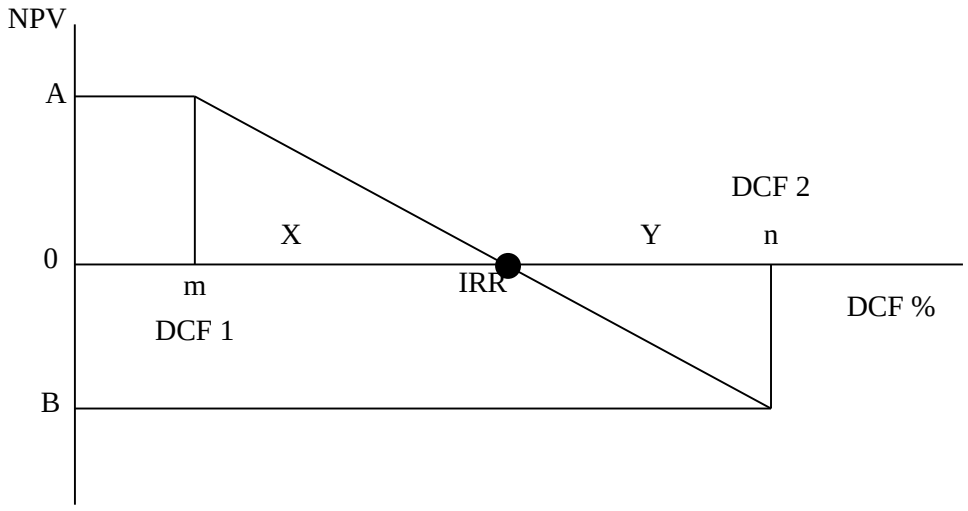
Explanation:
BCR = Benefit Cost Ratio
B = Total Benefit
C = Total Cost
If the BCR value > 1, it means the planning is feasible to implement.
If the BCR value < 1, it means the planning is not feasible to implement.
If the BCR value = 1, it means the planning is balanced between the amount of costs incurred and the amount of benefits obtained from the existence of strategic national tourism transportation routes in Tanjung Lesung and Sawarna.

c. *Internal Rate of Return* (IRR)
Internal Rate of Return used to assess the suitability of cash flows.

$$IRR = i_1 + \frac{NPV_1}{NPV_1 - NPV_2} \times (i_2 - i_1)$$

Explanation:
IRR = Internal Rate of Return
NPV_1 = NPV for the i-th value that is lower and has a positive value
NPV_2 = NPV for the i-th value that is higher and has a negative value
i_1 = highest discount rate
i_2 = lowest discount rate

The provision for finding the Internal Rate of Return (IRR) according to Suratman (2001) in his book titled "Project Feasibility Study: Techniques and Procedures for Report



Preparation," is :

Explanation :

$$X = \frac{OA}{OA - OB} \times (n - m)$$

$$IRR = n \times X$$

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Cost-Benefit Analysis Theory

Understanding Cost-Benefit Analysis

According to Dunn in his work titled "Introduction to Public Policy Analysis," cost-benefit analysis is a method that allows analysts to comprehensively estimate the total costs and benefits in order to compare and evaluate policies. The introduction of cost-benefit analysis aims to measure the total contribution of costs and benefits obtained by society. This method traditionally reflects elements of economic rationality, considering that most evaluation criteria are based on overall economic efficiency. Traditional cost-benefit analysis takes the market as the main reference. On the other hand, the modern cost-benefit analysis approach (also known as social cost-benefit analysis) can be used to calculate the redistribution of benefits (Dunn, 2003).

According to Schinederjans *et al.* (2010) In his book titled "Information Technology Investment: Decision-making Methodology," cost-benefit analysis is a technique used to evaluate the costs and benefits associated with various alternative actions that may be taken. This technique involves estimating and assessing the benefits related to these actions by comparing the current value of the benefits with the same investment costs. Thus, cost-benefit analysis is a tool that aids in the decision-making process with the aim of determining whether the benefits derived from an action outweigh its costs. Remenyi (2000) in his book titled "The Effective Measurement and Management of IT Costs and Benefit," also defines CBA as a tool used to assess whether the effectiveness and benefits of an action outweigh its costs. Simbel (2003) In his book "Self Management Series," he also considers cost-benefit analysis as one of the instruments that accelerates decision-making, focusing on the costs that must be incurred and the benefits that can be obtained from a decision.

Advantages and Disadvantages of Cost-Benefit Analysis

Cost and benefit analysis has several advantages, including:

1. Improving the efficient use of economic resources. By ensuring efficiency, the implementation of public policies can provide maximum benefits for the welfare of society (Mangkoesoebroto, 2001).
2. In cost-benefit analysis, costs and benefits are measured in currency as a unit of value, making it easier to evaluate efficiency (Dunn, 2003).
3. This method is very suitable for calculating the costs and benefits of project policies on a large or macro scale, especially those that have a significant impact on the overall regional development performance (Sjafrizal, 2008).

However, there are several weaknesses in the cost-benefit analysis as outlined by Mangkoesoebroto (2001):

1. The possibility of selecting policies or projects that are less beneficial for the community. This is due to the focus on calculating benefits quantitatively, while some projects or policies may have benefits that are difficult to measure quantitatively.
2. The limitation of flexibility in this analysis, because all calculations are done with a quantitative approach. This can lead to overly mechanical analysis results, making

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government decisions less responsive to public aspirations and tending to follow overly formalistic processes.

Purpose of Cost-Benefit Analysis

There are specific objectives that want to be achieved in the cost-benefit analysis (Rehesaar & Mead, 2005), that is :

1. Collect relevant baseline data.
2. Identify various policy alternatives that can be applied.
3. Recognize potential changes that may occur in outcomes and risks.
4. Conduct an economic evaluation of the costs and benefits of each alternative.
5. Calculate the total net benefits that can be generated from the various available alternatives.

Aspects of Cost-Benefit Analysis

In the implementation of cost-benefit analysis/CBA, there are three main interconnected and influential aspects, namely:

1. Benefits in the context of business include cost reduction and performance or revenue improvement.

Benefits, also known as profits, are the results obtained from productive activities. When planning a project such as factory construction or similar projects, it is very important to conduct research on the level of benefits generated in each period as well as overall during the economic technical period of the project.

The benefits generated may remain constant over time or may change. Therefore, within the scope of research and project evaluation, benefits can be classified into two types, namely fixed benefits and variable benefits.Real benefits are the advantages gained by one party without any compensation or negative impact on the other party. Similarly, real costs are the expenses incurred in society without reducing the cost burden on the other party. On the other hand, illusory benefits are the benefits received by a certain group of people as a result of a project, without considering the losses experienced by another group of people due to the project.

These illusory benefits are not included in the calculation of the benefits and costs of a project. Direct cost benefits refer to the advantages that arise directly from expenditures directly related to the main objectives of a project. Meanwhile, the indirect benefits and costs of a project tend to be consequential, emerging as additional results of the project's implementation.

Cost in the realm of technology includes fixed and variable costs needed to build a system.

According to Jusup (2011), Costs can be classified into two main types: direct costs and indirect costs. Direct costs refer to expenditures that can be directly identified with a specific cost component. Examples of direct costs include raw material costs and direct labor costs. On the other hand, indirect costs refer to expenditures that cannot be directly attributed to a specific cost component. Examples of indirect costs include factory overhead costs, indirect labor costs, and indirect material costs.

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Production costs, also known as manufacturing costs, refer to the expenses related to the activities of transforming raw materials into finished goods. Production costs consist of three main components.

1. First, direct materials, which are the materials that physically become part of the finished goods. The acquisition cost of direct materials, including the purchase price and shipping costs, can be directly traced to the finished goods.
2. Second, direct labor, which is the cost incurred from the labor work to convert raw materials into finished goods. The cost of direct labor can be directly attributed to the finished goods.
3. Finally, factory overhead includes all production costs other than direct materials and direct labor. Factory overhead costs arise from supporting production activities, such as storing goods, machine setup, and workplace cleaning activities. Therefore, factory overhead costs are often referred to as indirect production costs.

Costs are a representation of the use of economic resources in the form of money, whether they have already occurred or may occur in the future, with a specific purpose. In the cost analysis process, it is important to understand the types of costs associated with vehicle operations. It is necessary to clearly identify the various cost components required in calculating vehicle operational costs.

a. *fixed cost*

Fixed costs refer to expenses that remain constant and are not affected by the operation of the vehicle, even when the vehicle is not in use. These costs are constant during the construction period and do not change for months or years. In other words, fixed costs do not depend on the extent to which the vehicle is used, but remain consistent in amount over a certain period, whether the vehicle is active or not.

The Vehicle Operational Cost Guidelines (BOK) issued by the Directorate General of Land Transportation, specifically the Technical Guidelines for the Implementation of Fixed Passenger Transportation in Urban Areas Number SK.687/AJ.206/DRJD/2002, provide guidelines on the calculation of basic costs. To calculate the basic cost, you can generally use the basic cost structure that has been established for each type of transportation service and type of vehicle. It should be noted that the condition of the vehicle can vary depending on the level of maintenance performed, while the level of additional services can be determined individually. The Vehicle Operational Cost (BOK) for public transportation can vary from one city to another, making it a challenge to compare vehicles. These differences can be caused by variations in traffic conditions, local government policies, and the level of vehicle maintenance required in each location. Therefore, a thorough analysis is needed to understand and compare vehicle operating costs in the specific context of each city.

b. Variables of Vehicle Operating Costs (BOK) The important variables in calculating vehicle operating costs are:

1) Fixed Direct Costs are costs that remain constant during a work period and do not change with the volume of service production up to a certain level. The components

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included in fixed costs for vehicle operation are: Capital Costs, Installment and Interest Costs, Vehicle Depreciation Costs, Administrative Costs (STNK, KIR Vehicle, Route Permit, Business Permit, General Business Costs).

2) Variable Direct Costs are types of costs that fluctuate according to changes in output, such as: Fuel Costs, Tire Usage Costs, Minor Service Costs, Major Service Costs, General Overhaul Costs, Oil Addition Costs, and Spare Parts Costs.
3) Indirect Costs encompass salaries and allowances for administrative, technical, and executive staff, as well as company administrative management costs and other costs not covered by the fixed and variable cost components mentioned above. The amount of overhead costs is set at 10% of the total variable and fixed costs. It is assumed that with a cost of 10% of the vehicle operating costs, these costs not covered by variable or fixed costs can be sufficiently met.

c. The calculation method for the basic vehicle cost (BOK) can be carried out in the following stages:
1) In the direct cost group, some costs can be directly calculated per km-vehicle, then calculated per year and per passenger.
2) Indirect costs can be indirectly calculated as the fixed cost components per vehicle per year.
3) The basic cost per vehicle per year is calculated by summing the direct and indirect costs.
4) Passengers per trip (Pgr) is the number of passengers per vehicle per trip on each route.
5) Passengers per day (Pgh) is the number of passengers per trip multiplied by the number of trips obtained in a day.
6) Revenue per trip (Pdr) is the number of passengers per trip multiplied by the applicable fare.
7) Revenue per day (Pdh) is the total revenue per trip multiplied by the number of trips per day.

d. *Value* is the result of the benefits obtained by the company owner, which can be observed through the continuity of the business both at present and in the future.

Value in cost-benefit analysis is a measure of the benefits obtained by the company owner or related parties. This value is reflected in the form of business sustainability or project success, both in the present time and in the future. In other words, value describes the extent to which the analyzed project or policy can provide valuable benefits to the parties involved.

Value is a key factor in CBA because the goal of this analysis is to determine whether the benefits obtained from an action or project outweigh its costs. In this context, value reflects the extent to which the action provides valuable benefits to the parties involved, such as business owners, the government, or society.

Determining value in CBA involves identifying and measuring the benefits that can be obtained from an action or project. These benefits can include increased income, cost savings, improved quality of life, or other positive impacts. In value measurement, these

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benefits are often estimated in monetary terms to facilitate comparison with the associated costs.

Stages of Cost-Benefit Analysis

The steps in analyzing the efficiency of a project through cost-benefit analysis are as follows: first, identify all the benefits and costs associated with the project to be undertaken. Next, calculate and convert all those benefits and costs into present monetary value. From the explanation above, it can be concluded that cost-benefit analysis is an analytical tool that involves a systematic procedure to compare the costs and benefits associated with an activity or project. The goal is to assess whether the value of the benefits outweighs the costs incurred. The results of this analysis can be used as a basis for making decisions regarding the continuation of a project.

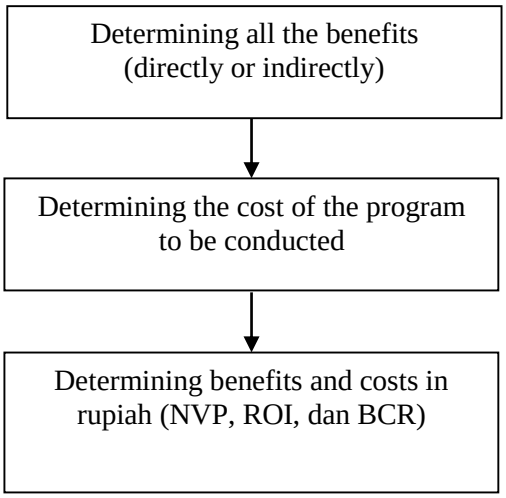

Figure 2.1: Cost-Benefit Analysis Framework

In conducting a cost-benefit analysis, there are a series of basic steps explained by Lawrence and Mears (2004) that need to be followed, namely:

1. Determination of Analysis Objectives:
   The first step in CBA is to clearly establish the analysis objectives. Before collecting data, you must clearly understand what you want to evaluate. For example, is the evaluation only related to one project or more than one activity that will be evaluated?
2. Establishing Perspective:
   At the initial stage, you also need to determine the perspective that will be used in the analysis. This involves identifying the stakeholders involved. By considering the costs and benefits from various perspectives, you can understand the sensitivity impact on the analysis results.
3. Identification of Costs and Benefits:
   Next, you must comprehensively identify all costs and benefits. This includes two main components:
   a. Direct Benefits
   b. Indirect Benefits

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4. Calculating and Quantifying:
   After identifying costs and benefits, the next step is to calculate, estimate, measure, and quantify these values. This may involve converting these values into monetary units if possible, or measuring items that may not have a quantitative value. The results will be used to calculate the total costs and benefits.
5. Considering the Discount Factor:
   The discount factor is a reducing value applied to benefits and costs that will occur in the future to bring those values into present value. This is very important when:
   a. Benefits and costs occur over several periods.
   b. Accounting for uncertainty.
6. Outlining Limitations and Assumptions:
   Finally, it is important to outline the limitations of the analysis and the assumptions used. Limitations include aspects not covered in the analysis, and assumptions must be explained in detail to ensure a good understanding by the users of the analysis information.

Thus, the CBA process involves these steps to produce a comprehensive evaluation of the costs and benefits of a particular action or project.

Tourism and Transportation Theory

Tourist transportation is a type of transport that uses public buses adapted for tourism needs or other needs not related to fixed routes, such as family and social needs. In Article 31 of the Minister of Transportation's Decree Number: KM. 35 of 2003, which regulates the provision of passenger transport with public vehicles, it is stated that:

1. Tourism transportation services, as explained in Article 28 letter c, are transportation services to and from tourist destinations that are not limited to specific administrative areas. These services can also be used for other purposes outside fixed routes, including family and social needs.
2. Tourism transportation services have the following characteristics:
   a. Transporting tourists or groups.
   b. Serving routes to and from tourist destinations or other locations.
   c. Using buses as the means of transportation.
   d. Not operating through terminals.
3. Buses used for tourism purposes or other purposes outside fixed routes, as explained in paragraph (2), must comply with the following requirements:
   a. Equipped with labels and stickers indicating "TOURISM" permanently affixed to the left front windshield and the right rear windshield of the bus.
   b. Have the company logo, company name, and vehicle number permanently affixed to the left and right side walls of the bus.
   c. Have the words "TOURISM TRANSPORTATION" permanently affixed to the left and right side walls of the bus.

Thus, this regulation governs the use of buses in tourism transportation services and the requirements that must be met by tourism buses.

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Transportation is a very important element in the development of a region or country. This is because transportation can serve as a foundation for industrial growth, economic development, and societal advancement. The role of transportation involves various aspects of human life, both as a means to connect interactions between individuals and as a means to transport goods from one place to another. According to Adisasmita, as cited in the research by Fatimah (2019), transportation is a means that connects production areas with markets. The role of transportation here acts as a bridge between producers and consumers, as well as connecting various parties that need those services. Transportation plays an important role in sectors such as agriculture, government, tourism, and many other sectors to transport goods and people according to the needs of each sector.

Salim (1993), Transportation is a field that encompasses many other areas, such as management, government policy, development, and economics. This involves the process of transporting goods and people from one place to another. According to Goeltom, in the writing Basuki & Prawoto (2016), Advancements in the transportation sector are often followed by advancements in the tourism industry; transportation plays a crucial role in the tourism industry. Improvements in more efficient transportation facilities are necessary for the sustainable growth of tourist destinations.

Tourist transportation, as defined by Alkheder (2016), is a means of transportation used to transport tourists to and from tourist areas. Transportation in the context of tourism has an inseparable role because it affects the connectivity between the origin and destination of tourists as well as mobility in tourist areas. Tourist transportation is evaluated based on time and cost. Tourists prefer cheaper and faster transportation. With the availability of tourism transportation services, tourists can more easily access tourist destinations. Transportation routes and lines usually connect hotels with tourist attractions or from transit terminals to tourist locations.

In the Government Regulation of the Republic of Indonesia Number 50 of 2011 concerning the National Tourism Development Master Plan for 2010-2025, it is stated that one of the policy directions is to enhance the provision and development of transportation to facilitate access to tourist locations and provide comfort to tourists during their journey to these locations. This policy aims to improve the availability of transportation facilities in accordance with tourism needs.

Transportation has a significant impact on the growth of the tourism sector in an area. The availability of good, safe, and affordable transportation facilities to reach tourist attractions will increase the number of visitors. Conversely, the development of tourist attractions will also contribute to the development of the transportation sector in the area. Affordability or accessibility is an important factor in transporting tourists. Tourists will need modes of transportation to reach their tourist destinations. The relationship between tourism and transportation is influenced by two main factors, namely the ease of access to destinations and the quality of transportation services, which include aspects of safety, comfort, frequency, efficiency, and reliability (Tambunan, 2009). Transportation is not just a means of moving from one place to another, but it has also become an attraction in itself.

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Advancements in the transportation sector will ease travelers' journeys, especially with the availability of modern transportation facilities that are easily accessible and affordable. Improvements in transportation modes and affordable fares have increased accessibility to tourist destinations. This enhanced accessibility has become one of the key factors in attracting tourists to visit. Not only in terms of accessibility, transportation advancements also influence the travel experience of tourists during their journey. Transportation modes are a crucial factor in planning tourists' trips.

Technical Guidelines for Passenger Transport Operations

1. SK Director General of Land Transportation No. 687/AJ.206/DRJD/2002 concerning Technical Guidelines for the Operation of Public Passenger Transportation in Urban Areas on Fixed and Regular Routes.
   a. Passenger Car is any motor vehicle equipped with a maximum of eight seats, excluding the driver's seat, whether or not it has luggage transport equipment.
   b. Public Passenger Car (MPU) is a passenger car used as a public vehicle.
   c. Small Bus is a vehicle equipped with at least nine to nineteen seats, excluding the driver's seat.
   d. Fare is the amount charged to each passenger of a public passenger transport vehicle, expressed in rupiah.
2. Law No. 22 of 2009 on Traffic and Road Transportation
   a. Public transportation companies are companies that provide services for the transportation of people and/or goods using public vehicles on the road (General Provisions).
   b. Public vehicles are any motor vehicles provided for public use with a fee charged (General Provisions).
   c. Every motor vehicle operated on the road must be used for its intended purpose, meet technical requirements and roadworthiness, and be suitable for the class of road traversed (Article 13).
   d. City transportation is transportation from one place to another within the city area using public buses or public passenger vehicles that are bound to fixed and regular routes. (pasal 36).
3. Decision of the Director General of Land Transportation Number KP DRJD 630 of 2022 regarding Technical Guidelines for Providing Subsidies in the Form of Operational Cost Assistance for Pioneer Road Transportation.
   a. Subsidy is financial assistance for the operational costs of public passenger transport with an economy class fare on certain routes that are not yet financially profitable.
   b. A Small Bus is a Motor Vehicle for Passenger Transport weighing more than 3,500 (three thousand five hundred) kilograms up to 5,000 (five thousand) kilograms, with a maximum length of 6,000 (six thousand) millimeters, a width not exceeding 2,100 (two thousand one hundred) millimeters, and a height not more than 1.7 (one point seven) times the width of the vehicle.

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c. A Medium Bus is a Motor Vehicle for Passenger Transport weighing more than 5,000 (five thousand) kilograms up to 8,000 (eight thousand) kilograms, with a maximum length of 9,000 (nine thousand) millimeters, a width not exceeding 2,100 (two thousand one hundred) millimeters, and a height not more than 1.7 (one point seven) times the width of the vehicle.

The Relationship Between Research and Business Administration

The research on the financial feasibility study of the Perum DAMRI Serang Branch business with a focus on the transportation routes in the national strategic tourism areas of Tanjung Lesung and Sawarna falls into the category of business administration science for the following reasons:

1. Focus on business feasibility: This research evaluates the financial feasibility of Perum DAMRI's operations in the Serang branch, which includes transportation routes in the national tourism areas of Tanjung Lesung and Sawarna. Financial feasibility is one of the important aspects in the field of business administration, which relates to smart business decision-making, investment analysis, and financial management.
2. Business management and operations: This research covers elements of business management and operations, including operational efficiency, costs, revenue, and financial strategies necessary to run a transportation business like Perum DAMRI. This is a core topic in business administration related to company operational management.
3. Tourism context: This research also covers the national tourist areas of Tanjung Lesung and Sawarna. The tourism industry is an important part of the business sector and is a primary focus in business administration. Examining the economic impact and business strategies in the context of tourism is an important aspect of managing and developing a business.
4. Understanding regional economic impact: This research discusses the potential regional economic impact of Perum DAMRI's operations in the area. Business administration often involves understanding how businesses affect the economy and society in a region, which is included within the scope of this research.
5. Relation to business research: Overall, this research is highly relevant to the field of business administration because it discusses aspects that are core focuses in the study of business administration, such as management, finance, and business strategy in the context of transportation and tourism.

Thus, this research falls into the category of business administration science because it considers many relevant aspects in business administration, especially those related to the financial and operational feasibility of a business venture.

CONCLUSIONS

The conclusion from the financial feasibility analysis and the supporting and inhibiting factors in the operations of DAMRI company on the Tanjung Lesung-Soekarno-Hatta Airport and Sawarna-Rangkasbitung Station routes is as follows: Financial Feasibility: Based on the Benefit Cost Ratio (BCR) analysis, the DAMRI company's operations on the Tanjung Lesung-

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Soekarno-Hatta Airport and Sawarna-Rangkasbitung Station routes do not appear to be feasible. The Net Present Value (NPV) analysis shows that this project is not profitable in the first two years with a discount rate of 12.5%. However, the Internal Rate of Return (IRR) indicates that this project has the potential to generate profitable returns, with an internal return rate of around 15%. From the Perspective of Costs, Economic Benefits, and Financial Aspects: This project tends to incur losses in its early operations, but with the possibility of future profitability through a positive IRR. Therefore, it needs to be considered carefully, especially in managing operational costs to keep losses at an acceptable level. Strategic Steps: To maintain the sustainability of operations on the Tanjung Lesung-Soekarno-Hatta Airport and Sawarna-Rangkasbitung Station routes, there are several strategic steps that can be taken: Conducting regular maintenance and servicing on the bus fleet to minimize damage due to poor road conditions. Using technology for real-time bus tracking, online booking, and quick problem reporting. Building good relationships with local government to understand applicable policies and regulations and collaborate on infrastructure improvement projects. Conducting regular evaluations of route performance, service, and customer satisfaction to identify necessary improvements. Being flexible in responding to changes in demand and market conditions. Supporting and Inhibiting Factors: Factors such as adequate infrastructure, cooperation with local governments, tourism promotion, technology use, and fleet quality are supportive in the operation of this route. However, traffic congestion, poor road conditions, unsupportive policies and regulations, competition with other transportation service providers, and demand fluctuations are inhibiting factors that need to be managed. By effectively managing these factors, DAMRI can improve service quality, enhance customer satisfaction, and maintain operational sustainability on both routes.

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