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FEASIBILITY OF ALL TERRAIN VEHICLE (ATV) INVESTMENT IN TRIDEA HILLS MSMEs PORAME TOURISM VILLAGE

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Abstract:
 This study analyzes investment decisions in the All Terrain Vehicle (ATV) rental business. This study uses quantitative descriptive analysis methods and qualitative descriptive analysis methods. The data used in this study are primary data with data collection techniques carried out by observation, interviews, and documentation. The analysis of investment decisions in the All Terrain Vehicle (ATV) rental business uses NPV (Net Present Value), IRR (Internal Rate Return), Net B/C Ratio, and PP (Payback Period) analysis. The results of the study of the ATV rental business at UMKM Tridea Hills, Porame Village, obtained a Net Present Value (NPV) of Rp82,248,651, Internal Rate of Return (IRR) of 46%, Net B/C Ratio of 1.87; and Payback Period (PP) of 3.7, which means that the investment value invested will be returned for 3 years and 7 months of operation. These investment decision analysis indicators confirm that this ATV rental business is feasible to pursue and develop.

Keywords: All Terrain Vehicle, Investment Value, Investment Decisions

INTRODUCTION

Tridea Hills is a new tourist attraction in Porame Village, Kinovaro District, Sigi Regency, Central Sulawesi. This tour has a Villa, Camp, Cafe, and Working Space and provides indoor and outdoor places of worship for Muslims who want to perform prayers.

Known for its stunning natural scenery, Tridea Hills offers panoramic views of mountains and green expanses that are pleasing to the eye. This place is the right choice for nature lovers and tourists who want to enjoy the cool atmosphere, fresh air, and the beauty of pristine nature.

With a relatively hidden and not-too-crowded location, Tridea Hills provides a peaceful and refreshing tourist experience. As a newly developing tourist spot, Tridea Hills has the potential to become one of the main destinations in Central Sulawesi for those who want to get away from the hustle and bustle of the city and enjoy the peace of nature.

The All Terrain Vehicle (ATV) rental business is considered a new business opportunity for Tridea Hills, which is profitable and in demand by many people with (1) Large market potential, especially in the Porame village area which does not have a similar business, (2) Demand for ATV rental tends to be high, especially in busy tourist areas, (3) Affordable initial capital taking into account long-term profits (Noveriansyah et al., 2024).

To assess the feasibility of investment, it is also necessary to analyze the potential profits, risks and strategies used. Possible risks include damage to the rented motorbike or a lack of consumers. Routine vehicle maintenance ensures the vehicle is in good condition. Well-maintained vehicles reduce the risk of damage and increase customer satisfaction.

Investment Eligibility. Investment is an effort to generate funds from assets owned. Investment results can increase existing income, save for retirement, or meet certain commitments such as debt payments, living expenses, or purchasing additional assets.

Investment decisions are a system for distributing cash to previously selected assets. The next step is to analyze the future rate of return on a certain amount.

METHODS

Data analysis used in this study is qualitative and quantitative descriptive analysis. Qualitative descriptive analysis methods include a general description of the ATV business. Quantitative descriptive analysis methods to determine costs and income and financial analysis of the ATV business.

The feasibility analysis of this ATV business uses NPV, IRR, Net B/C Ratio, and PP analysis to determine whether or not this ATV business is feasible in the present and future. The NPV value can be calculated using the formula according to Kasmir and Jakfar (2009);

$$NPV = \sum_{t=1}^n \frac{Cft}{1+k} - 10$$

Description:

NPV: Net Present Value

Cft: First-year cash flow

10: Initial investment

K: Interest rate (Discount rate)

Criteria:

NPV > 0 = Business is Feasible

NPV < 0 = Business is Not Feasible

Internal Rate of Return (IRR) is an interest rate that describes a business's profit level. If the IRR value is greater than the target interest rate, then the business being studied is considered feasible. IRR can be calculated using the formula according to Kasmir and Jakfar (2009):

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

Description:

IRR: Internal Rate of Return

i1: First interest rate

i2: Second interest rate

NPV1: NPV at first interest rate

NPV2: NPV at a second interest rate

Criteria:

IRR > Discount rate = Business is Feasible

IRR < Discount rate = Business is Not Feasible



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The Net B/C ratio is used to find the comparison between the profits obtained and the costs incurred by referring to the existing value with the formula:

$$Net \frac{B}{C} = \frac{\sum_{t=1}^n \frac{B_t - C_t}{(1+i)^t}}{\sum_{t=1}^n \frac{C_t - B_t}{(1+i)^t}} \begin{matrix} [B_t - C_t] > 0 \\ [C_t - B_t] > 0 \end{matrix}$$

With the following eligibility criteria:

- Net B/C ratio > 1, then the business is considered feasible to run
- Net B/C ratio < 1, then the business is considered not feasible to run
- Net B/C ratio = 1, then the implementation decision depends on the investor

The payback period can be interpreted as the length of time for the return on investment that has been issued through the profits obtained from a project or business that has been planned. PP can be calculated using the formula according to Kasmir and Jakfar (2009):

$$Payback \ Period = n + \frac{(a - b)}{(c - b)} \times 1Year$$

Description:

- n: The last year where the amount of cash flow still cannot cover the initial investment
- a: Amount of initial investment
- b: Cumulative amount of cash flow in year n
- c: Cumulative amount of cash flow in year n +[1]

RESULT AND DISCUSSION

Description of All Terrain Vehicle (ATV). All Terrain Vehicle (ATV) is an open motor vehicle that can pass through not too-crowded roads. ATV motorbikes have a large and tall shape and have 4 wheels that look like car wheels. ATV motorbikes are usually used in recreational areas, such as tracking to rather extreme, uphill and muddy roads. ATV motorbikes are very wide and can be used by a maximum of 2 people, making outdoor adventures more enjoyable.



Figure 1. All Terrain Vehicle



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Figure 2. Main Features of All Terrain Vehicle

The following is an explanation of the main features of an ATV (All-Terrain Vehicle) motorbike, using Indonesian:

A Straddled Seat (Place to Sit Across) is a type of seat where the rider sits with both feet on the side of the vehicle. This position is similar to the way you sit on a motorcycle. This seat provides better control and stability when riding on difficult terrain. It allows the rider to move more freely and provides comfort when riding long distances or rough terrain.

Handlebars are components used to control the direction of the ATV. The rider uses the handlebars to turn the front wheels, allowing the vehicle to move left or right. The handlebars on ATVs are generally ergonomically designed for rider comfort and are equipped with brake and clutch levers for further control.

The Compact Body of an ATV refers to its smaller, sleeker size and design than other vehicles such as trucks or cars. This design allows the ATV to maneuver through tight terrain or obstacles easily. With a compact body, an ATV can traverse areas difficult for larger vehicles to reach, making it ideal for off-road adventures.

Four Low-Pressure Tires: ATVs generally have four low-pressure tires with wide and deep treads. These tires provide better traction on various types of terrain, such as sand, mud, or snow. Low-pressure tires can distribute the vehicle's weight more evenly, reducing the possibility of tire jams and increasing driving comfort on uneven surfaces.

High Ground Clearance. High ground clearance on an ATV means the vehicle has enough space between its body and the ground surface. It allows the ATV to pass over obstacles such as rocks, tree roots, and mounds of dirt without damaging the undercarriage. High ground clearance is important to maintain stability and prevent damage to the undercarriage components when traversing rough terrain.

Powerful Engine (High-Powered Engine). An ATV's high-powered engine is designed to provide enough power to tackle tough terrain and other off-road challenges. This engine allows the ATV to travel at high speeds and provides the torque needed to conquer steep hills, sand, mud, and other tough terrain. ATV engines can vary in capacity and configuration but generally have enough power for optimal performance.

These features are important elements that make ATVs ideal for adventure, sports and work activities in various terrains, both in the wild and in extreme terrain.



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Figure 3. All Terrain Vehicle Spare Parts

The following is an explanation of the use of various parts and accessories on an ATV (All-Terrain Vehicle) in Indonesian:

The stator is part of the charging system on an ATV that generates electrical power. When the engine runs, the stator works with the flywheel to charge the battery and provide electricity to electronic components such as lights, ignition, and sensors.

Puncture Repair Kits / Replacement Strings: This puncture repair kit is used to repair punctured tires. It usually contains tools such as a reamer (to clean the hole), an installation tool, and a replacement rubber string inserted into the hole to temporarily or permanently seal the leak.

Tie-down ratchet Straps secure ATVs during transportation, either on a truck or trailer. The ratchet system ensures that the straps remain tight and that the ATV does not shift or fall during the trip.

Bullbars are protectors installed on the front of an ATV to prevent the vehicle from hitting obstacles such as rocks or trees. They also protect vital parts such as headlights and engines from damage.

Mittens or protective gloves protect the rider's hands from cold weather. These gloves help keep hands warm and comfortable while riding an ATV in cold weather.

Brake Pads/Shoes: Brake pads (for disc brakes) and shoes (for drum brakes) slow or stop the ATV's movement. These components create friction on the brake rotor or drum to reduce the vehicle's speed. They need to be replaced periodically because they will wear out over time.

CV Half Shafts are part of the ATV drive system that connects the engine to the wheels. This part allows the wheels to rotate smoothly even when the ATV turns or moves on uneven terrain.

Universal Crosses (U-joints) are joints in the drivetrain that connect the drive shaft to other components. They transfer rotational power while providing flexibility in wheel movement as the ATV moves through rough terrain.

Front/Rear Differential Kits help distribute power to the front or rear wheels and allow the wheels to spin at different speeds when turning. It is important for maintaining traction and stability when the ATV is used on uneven terrain.



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Starter Motors function to start the engine starting process. When the ignition key is turned or the start button is pressed, the starter motor will turn the engine so that the engine can start.

Swingarm Bearing Kits: Swingarm bearing kits contain bearings that connect the swingarm (rear suspension arm) to the ATV frame. These bearings allow the swingarm to move smoothly and absorb impact from rough terrain.

A solenoid is an electromagnetic switch used to control the flow of electricity. On an ATV, the solenoid plays a role in the engine's starting system, helping to connect the starter motor to the battery when the engine is started.

A tow ball is mounted on the rear of an ATV and is used to pull a trailer, cart, or other equipment. This component allows the ATV to tow objects or other vehicles.

The battery provides electrical power to start the starter motor, run the lights, and power other electrical components. It stores energy when the engine is not running and ensures that the ATV continues functioning properly.

The Voltage Regulator regulates the flow of electricity from the stator to the battery, ensuring the voltage remains within a safe range. This component prevents the battery from overcharging or undercharging, which can damage the ATV's electrical system.

Cargo Nets secure items on an ATV, especially in the rear rack or cargo area. They prevent items from moving or falling out during the ride, making them very useful for carrying equipment or supplies on an adventure.

Doc Mats (Mud Mats) or protective mats protect the cargo area from dirt, mud, and other debris. These mats also provide a better grip for the carried items and make cleaning easier after the trip.

These components and accessories are vital in enhancing the ATV's performance, comfort, safety, and durability. They help the ATV operate efficiently in a variety of challenging terrain conditions.

ATV Operating Method. The ATV business operates from Monday to Friday from 15.00-18.00 WITA. It operates from 06.00-09.00 WITA on Saturday and Sunday, then will continue at 15.00-18.00 WITA. Each vehicle has a maximum capacity of 2 people, with a payment per round (maximum 1 hour).

Economic Aspects.

1. Income. Income is the value obtained from ATV rental results and is stated as income. The average income from ATV rental for 1 operating trip is Rp308,571. So, the average income for a year is Rp14,811,429.

2. Investment Cost. Investment is the amount of value that must be spent to run a business, with the amount adjusted to the type of business. One of the important factors in running an ATV business is investment capital which is the main means for smooth production. The cost of the ATV business is IDR 23,300,000. The largest investment cost lies in the ATV investment component, which is 98.7% and the smallest is in the Helmet 0.4% (Table 1).

Table 1. Percentage of Investment Cost Components

No	Types of Vehicles and Equipment	Number of Units	Purchase price	Percentage (%)
1	All Terrain Vehicle	4	23.000.000	98,7
2	Helm	8	100.000	0,4



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3	Elbow and knee protectors	8	200.000	0,9
Total		20	23.300.000	100

3. Fixed Costs. Fixed costs are the value that must be spent on production activities, with a tendency for a fixed value for one year. Fixed costs incurred for the ATV business amount to Rp16,150,000 (Table 2). Three cost components that dominate fixed costs include operational vehicle depreciation costs (7.1%), engine maintenance costs (55.7%), and vehicle maintenance (37.2%).

Table 2. Fixed Costs of ATV Business

No	Cost components	Mark	Percentage (%)
1	Vehicle Depreciation	1.150.000	7,1
2	Machine Maintenance	9.000.000	55,7
3	Vehicle Maintenance	6.000.000	37,2
Total		16.150.000	100

4. Variable Costs. Variable costs are the amount of value that must be spent on production activities, with the value tending to change according to the time of implementation of production activities. Variable ATV business costs include diesel and employee wages (Table 3). Variable costs are influenced by the average monthly operational trips of 30 trips, with a fishing time of one year.

Table 3. Variable Costs of ATV Business

No	Cost Components	Trip	Monthly	Annual	%
1	Solar	36.000	756.000	9.072.000	33,51
2	Employee Wages	71.429	1.500.000	18.000.000	66,49
Total		107.429	2.256.000	27.072.000	100

5. Operational Costs. The annual operational costs of the ATV business are Rp28,740,000, with the largest cost components being employee wages of Rp36,000,000 or 29.16%; gasoline of Rp25,200,000 or 20.41%; and cigarettes of Rp13,356,000 or 10.82%. The employee wages component is the highest operational cost component, according to Table 4

Table 4. ATV Business Operating Costs

No	Cost Components	Annual	Percentage
1	Solar	12.240.000	27
2	Employee Wages	18.000.000	40
3	Machine Maintenance	9.000.000	20
4	Vehicle Maintenance	6.000.000	13
Total		45.240.000	100



6. Profit. A business is feasible to be developed if it provides a significant profit contribution. The greater the profit obtained from a business, the more feasible the business is to continue to be developed. For the ATV business in Porame Village, a profit of Rp47,870,000 was obtained per year

Business Feasibility Analysis. A business is feasible if the business generates profits and returns on investment for the business actor. For this reason, several analyses need to be conducted to assess whether the business is feasible or not to continue.

1. NPV (Net Present Value). Net Present Value (NPV) is an indicator used to assess the feasibility of a business by measuring the value of business revenue in year t minus business costs in year t at the prevailing interest rate (Bangkara et al., 2023). For the ATV business, the NPV value is IDR 82,248,651. The interest rate used is 14.00%, following the credit interest for BRI Bank micro businesses that apply in 2023. The NPV value is positive > 0 , indicating that the ATV business in Porame Village is feasible to run and develop.

2. IRR (Internal Rate of Return). The Internal Rate of Return (IRR) indicates a business's investment feasibility. This ATV business produces an IRR value of 46%. This IRR value is calculated by estimating the project/business period for the next 5 years. The IRR value is higher than several investment instruments, such as deposits (3%), indicating that the ATV business in Porame Village is feasible to run.

3. Benefit-cost ratio (B/C ratio). Benefit-Cost Ratio (B/C ratio) is used to measure the income level compared to the costs incurred in the ATV business in Porame Village, taking into account the applicable interest rates. The B/C ratio value obtained is 1.87 or greater than 1 (>1), so this business can be attempted and developed.

4. PP (Payback Period). The feasibility of a business is also assessed from the period of return on investment invested in the business. The shorter the period of return on investment from the profits obtained, the better a business is to run and develop. In the ATV business, the payback period (PP) value is 3.7, which means the investment value will be returned for 3 years and 7 months of operation (Wati et al., 2023). Therefore, the ATV business with a return on investment period of less than 5 years can be considered good and feasible.

Investment Decision Analysis.

1. Income. The amount of ATV income in 1 average operating trip is Rp802,857. So, the average income for a year is Rp202,320,000.

2. Operational Costs. The average operational cost of an ATV business is Rp45,240,000.

Table 5. ATV Business Operational Costs

No	Cost Components	Annual
1	Solar	12.240.000
2	Employee Wages	18.000.000
3	Machine Maintenance	9.000.000
4	Vehicle Maintenance	6.000.000
Total		45.240.000

3. Net Profit. The average net profit value of the ATV business for a year is Rp47,870,000, according to Table 6.

Table 6. Net Profit of ATV Business



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Income	
Total Income	Rp 77.760.000
Variable Costs	
1 Solar	Rp 12.240.000
2 Employee Wages	Rp 1.500.000
Total Variable Costs	Rp 13.740.000
Maintenance Costs	
1 Machine Maintenance	Rp 9.000.000
2 Operational Vehicle Maintenance	Rp 6.000.000
Total Maintenance Cost	Rp 15.000.000
Depreciation Expense	
1 Depreciation of Operational Vehicles	Rp 1.150.000
Amount of Depreciation Expense	Rp 1.150.000
Net profit	Rp 47.870.000

CONCLUSION

Based on the ATV business study, the results of the business analysis and investment criteria, which include the NPV (Net Present Value) value of Rp82,248,651, Internal Rate of Return (IRR) of 46%, Net B/C Ratio of 1.37, and Payback Period (PP) of 3.4, mean that the investment value invested will be returned for 3 years and 7 months of operation. So, this ATV business is feasible to be attempted and developed.

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