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Investment Feasibility Analysis of Procuring an Ultrasonography (USG) Machine at Griya Hayati Clinic Using Break-Even Point, Payback Period, and Net Present Value Methods

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Abstract

The healthcare industry, particularly small clinics, faces significant financial risks when procuring high-cost diagnostic equipment due to the uncertainty of cash flows and limited capital. While previous studies have addressed investment feasibility in large-scale hospitals, studies addressing the financial feasibility of medical equipment in independent pain clinics remain scarce. Therefore, this study examines the financial feasibility of procuring an Ultrasonography (USG) machine at Griya Hayati Clinic in Madiun, Indonesia. A quantitative descriptive research design was adopted, while saturated sampling was used to analyze the entire data related to the investment plan over a 5-year economic life projection. Secondary data were collected through document analysis and structured interviews with the clinic's management, and analyzed using three financial appraisal methods: Break-Even Point (BEP), Payback Period (PP), and Net Present Value (NPV). The result demonstrated that the investment is highly feasible. Specifically, the BEP is reached at 306 patients per year, offering a high Margin of Safety of 74.5%. Furthermore, the PP is achieved within 1 year, 4 months, and 2 days, which is significantly shorter than the machine's 5-year economic life. The NPV yielded a positive value of IDR 779,651,010 at a 10% discount rate. The study concludes that the procurement of the USG machine is highly feasible and financially viable for the clinic. The study recommends that the clinic management should immediately realize the investment and maintain its operational performance to meet the target patient volume.

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INTRODUCTION

The private healthcare industry, particularly clinics, plays a crucial role in supporting the national health system by providing more accessible primary care services to the community. As health awareness and demographic dynamics increase, competition in this sector has become increasingly intense. This condition requires every clinic to be not only operationally efficient but also innovative in improving the quality of medical services. In developing countries like Indonesia, the financial challenges to achieve this competitive advantage are substantial, as the procurement of medical diagnostic technology absorbs a massive portion of the clinic's limited capital resources.

Several instruments have been identified to predict the feasibility of a capital expenditure decision to prevent operational losses. The financial factors considered in this study as predictors of investment feasibility are Break-Even Point (BEP), Payback Period (PP), and Net Present Value (NPV) analysis. Investment feasibility is a series of evaluations to ensure that the capital spent does not turn into an idle asset. These parameters include BEP to map the minimum operational limits to avoid losses , PP to measure the speed of liquidity turnover , and NPV to ensure strategic profitability by measuring the time value of money in the future.

Studies on financial evaluation as a determinant of investment feasibility have been widely documented. For instance, Sanjaya (2025) found that a positive NPV is an absolute indicator of the feasibility of procuring heavy assets in the mining sector. Previously, Kurniawati, et al. (2025) proved that the integration of BEP, NPV, and PP methods is highly effective in determining feasibility and operational margin of safety in MSME entities. Lastly, Ahksan, et al. (2025) reported that the application of comprehensive financial analysis is proven to validate potential investment failure in the short term while projecting its actual feasibility in the long term for commercial ventures.

Independent clinics play a vital role in the health sector, yet they face complex challenges related to limited facilities. At Griya Hayati Clinic Madiun, the absence of an Ultrasonography (USG) machine forces doctors to use manual diagnostic methods that are less precise, triggering a high number of patient referrals to other facilities and creating an opportunity loss. On the other hand, management is faced with financial uncertainty regarding whether the average daily visit of 15 patients is capable of covering the initial investment cost of IDR 400,000,000 without disrupting operational cash flow. Therefore, given the high urgency of these diagnostic needs, it is critical to examine the extent to which

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this asset procurement plan is financially feasible. This study seeks to answer the question: Is the investment in the procurement of a USG machine feasible to be carried out at Griya Hayati Clinic Madiun if analyzed using the BEP, PP, and NPV methods?.

The results of this study will provide valuable insights into the role of financial evaluation in mitigating investment risks in small-scale independent clinics. Furthermore, this study will provide objective data for clinic internal policy makers, investors, and stakeholders in the health sector on how to formulate appropriate resource allocation strategies to prevent long-term financial losses.

THEORETICAL REVIEW

Financial Management and Capital Budgeting theories provide a fundamental perspective on organizational resource allocation by explaining how entities plan and manage long-term investments to maximize their value. Sudiantini (2022) argued that the primary objective of financial management is to maximize the firm's value rather than merely pursuing short-term accounting profits, which often ignore the time value of money. Furthermore, Ermawati (2022) and Sugiyanto (2020) established that capital budgeting serves as a strategic tool to evaluate large capital expenditures such as purchasing medical equipment whose returns are expected to span more than one year. By employing these theories, organizations can systematically assess whether a proposed investment will yield sufficient cash flows to justify the initial costs. In the context of procuring an Ultrasonography (USG) machine at an independent clinic, Capital Budgeting theory offers a useful framework for understanding how to mitigate the high risks associated with significant capital expenditures.

Small-scale clinics operate with limited financial resources, meaning that errors in investment calculation can disrupt operational cash flows and threaten overall business sustainability. Therefore, relying on precise financial assessment methods becomes a necessary strategy to avoid acquiring idle assets. The Break-Even Point (BEP) method provides a reliable operational baseline, mapping the minimum volume of patients required to avoid financial losses. The Payback Period (PP) method evaluates the speed of capital recovery, which is critical for measuring short-term liquidity risks. Lastly, the Net Present Value (NPV) method ensures strategic profitability by measuring the present value of future cash flows against the initial investment while accounting for inflation and opportunity costs. Some studies have supported the validity of these financial assessment theories when applied to investment feasibility across various sectors. For instance, Sanjaya (2025) found that NPV and PP are robust indicators for evaluating the feasibility of heavy asset procurement by explicitly identifying when capital returns and projecting future

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profitability. Similarly, Kurniawati et al. (2025) demonstrated in a production business study that the integration of BEP, PP, and NPV methods effectively determines the operational safety limits and long-term financial viability of an enterprise. Finally, Ahksan et al. (2025) reported how applying comprehensive PP and NPV analysis could validate potential short-term financial unfeasibility while accurately projecting long-term profitability in commercial ventures. These studies supported the idea that successful investment is not merely driven by operational or medical necessities, but must be grounded in measurable financial capacities.

The study tested the hypothesis that the investment plan for procuring a USG machine at Griya Hayati Clinic is financially feasible when analyzed using the Break-Even Point, Payback Period, and Net Present Value methods.

METHOD

Research Design

The study employed a quantitative descriptive research design to systematically analyze the financial feasibility of the investment plan. The study utilized secondary data extracted from the clinic's internal financial records and operational projections. The key analytical variables evaluated in this study were the Break-Even Point (BEP), Payback Period (PP), and Net Present Value (NPV) to determine the overall investment feasibility.

Setting and Study Population

The study was conducted at Griya Hayati Clinic, a pain management facility located in Madiun City, Indonesia. Given the nature of this research as a case study, the study population does not comprise a group of individuals, but rather the entirety of financial data and information related to the specific object of research, which is the investment plan for procuring the Ultrasonography (USG) machine. These data include the initial capital expenditure, routine fixed and variable operational costs, and historical patient visit records used for revenue projections over the asset's economic life. The population data was obtained directly from the official internal financial records and strategic planning documents provided by the clinic's management. This comprehensive financial dataset served as the focus of the study since it directly dictates the cash flow dynamics and is essential for accurately computing the operational risk, liquidity, and profitability of the investment.

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Sampling Technique Procedure

A saturated sampling (census) technique was used to select the data for this study. Since the population consisted of the specific financial and operational data related to the USG procurement plan at Griya Hayati Clinic, the entire population was utilized as the study sample to ensure a comprehensive and deep analysis. A direct documentation method was used for the extraction of these financial records from the clinic's management.

Instruments

Two validated questionnaires were used for data collection:

Driving Style Questionnaire Financial Investment and Operational Cost Data Checklist was used to systematically record and measure various aspects of the clinic's expenditures, such as the initial capital investment, fixed costs, and variable costs. Key data points collected using this instrument include the IDR 400,000,000 initial USG procurement price, the annual depreciation value of IDR 80,000,000, and specific variable costs such as USG gel, thermal paper, and specialist doctor's fees calculated per patient.

Road Accident History and Consequence Questionnaire Revenue and Patient Visit Projection Sheet was used to assess the clinic's historical service volume, the extent of operational bottlenecks (such as patient referrals), and forecast future financial inflows. Key data points extracted include the historical baseline data of 1,692 patient visits and 42 referrals to external hospitals in 2024, as well as the projected stable volume of 1,200 patients per year at an initial service tariff of IDR 800,000.

Data Collection

Data for this study were collected through a combination of document analysis and direct interviews with the management of Griya Hayati Clinic. The researchers systematically gathered and recorded secondary data from internal clinic documents, which included equipment price quotes, technical specifications, and historical financial records. Following the document review, in-depth question-and-answer sessions were conducted with the clinic's management to validate the data and extract specific assumptions underlying the revenue projections and operational cost estimates.

Data Analysis

The collected financial data were analyzed systematically using a quantitative descriptive approach. The analysis process began with identifying and classifying the data into initial investment costs, fixed operational costs, and variable costs. Subsequently, a five-year net cash flow projection was formulated by deducting projected operational costs and

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an assumed 25% income tax from the estimated revenue, while adding back non-cash depreciation expenses. The final investment feasibility was evaluated by applying the mathematical formulas for the Break-Even Point (BEP), Payback Period (PP), and Net Present Value (NPV) using a 10% discount rate, with the results compared against standard financial feasibility criteria.

RESULTS

Table 1: Projected Initial Investment Costs for the USG Machine

No.	Cost Component	Quantity	Unit Price (IDR)	Total Amount (IDR)
1.	USG Machine Purchase Price	1 unit	400,000,000	400,000,000
2.	Value Added Tax (VAT)	1 package	(VAT Included)	(VAT Included)
3.	Shipping and Installation Costs	1 package	(Included)	(Included)
4.	Operator Training Cost (Doctor/Midwife)	1 person	-	-
	Total Initial Investment (I_0)			**400,000,000**

Based on Table 1, the total initial investment required to realize the procurement of the USG machine at Griya Hayati Clinic is projected at IDR 400,000,000. This figure includes the purchase price of the main USG unit along with all supporting components necessary for the equipment to be ready for operation, such as VAT, shipping costs, installation, and operator training. This initial investment value will subsequently serve as the basis for calculating capital expenditure (I_0) in the financial feasibility analysis using the Payback Period (PP) and Net Present Value (NPV) methods.

The first stage of the operational cost projection focuses on calculating the Fixed Cost. These costs are expenses whose values are relatively constant and are not affected by fluctuations in the number of patients served, thus they must be incurred by the clinic every period to maintain operational readiness. The main components of these fixed costs consist of the depreciation cost of the USG machine, which has been calculated previously, as well as other routine cash fixed costs. A more detailed description of the Fixed Cost is explained in Table 2 below.

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Table 2: Total Fixed Cost per year

No.	Cost Component	Total Cost per Year (IDR)
1.	USG Machine Depreciation Cost	80,000,000
2.	Cash Fixed Costs (Operator Salary, Maintenance, etc.)	18,500,000
	Total Fixed Cost (TFC) per Year	**98,500,000**

Based on the details in Table 2 above, the total projected fixed cost (TFC) that must be borne by Griya Hayati Clinic every year amounts to IDR 98,500,000. This figure includes a depreciation expense of IDR 80,000,000 and operational cash fixed costs of IDR 18,500,000. This total fixed cost will later become the main dividing factor in the Break-Even Point (BEP) calculation formula to determine the business's break-even point.

Besides fixed costs, the operational projection also takes into account Variable Costs, which are cost components whose amounts are directly proportional to the volume of services provided. This means that these costs will only occur every time a patient undergoes a USG examination. The main components of variable costs in this service include medical consumables such as USG gel and thermal paper for printing results, as well as medical service allocations (fees) for the specialist doctor treating the patient. The Total Variable Cost is described in Table 3 below.

Table 3: Total Variable Cost per patient

No.	Cost Component	Cost per Patient (IDR)
1.	USG Gel (per patient)	17,500
2.	Film/Thermal Paper Print (per patient)	25,000
3.	Specialist Doctor Fee (per patient)	430,000
4.	Other Consumables (gloves, etc.)	5,000
	Total Variable Cost (v) per Patient	**477,500**

Based on Table 3 and the details of the components above, the calculation shows that the Total Variable Cost (v) incurred to serve one patient is IDR 477,500. This figure becomes a key variable in determining the size of the contribution margin per patient, which is calculated by subtracting this variable cost from the set service tariff.

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Testing the hypothesis

The Break-Even Point (BEP) analysis is the first step in answering the research problem. This analysis aims to determine the point where total revenue (TR) exactly equals total cost (TC), meaning the company experiences neither profit nor loss (Profit = 0). This analysis is crucial for measuring operational risk and determining the minimum service volume that Griya Hayati Clinic must achieve. The BEP calculation is based on Year 1 projection data, the components of which are summarized in the following table:

Table 2a: BEP Calculation Components (Year 1)

Component	Notation	Value (IDR)	Data Source	Component
Total Fixed Cost (TFC)	TFC	98,500,000	Table 2	Total Fixed Cost (TFC)
Variable Cost per Patient	v	477,500	Table 3	Variable Cost per Patient
Service Tariff per Patient	P	800,000	Table 3	Service Tariff per Patient

The contribution margin is the excess revenue from the service tariff (P) after deducting the variable cost (v). This is the amount that "contributes" to covering the fixed costs (TFC). The fundamental step in determining the break-even point is calculating the Contribution Margin. It represents the positive difference between sales revenue and variable costs. This value indicates the portion of revenue per patient available to 'contribute' to covering fixed costs, and once fixed costs are covered, this margin becomes net profit.

With a service tariff of IDR 800,000 and a variable cost per patient of IDR 477,500, the contribution margin per patient (CMu) is IDR 322,500. This means each patient served will contribute IDR 322,500 to cover the clinic's fixed costs. Converted into a percentage, the Contribution Margin Ratio is 40.31%. This ratio indicates that for every Rupiah of revenue received by the clinic, 40.31% is the gross margin available to cover fixed costs and generate profit, while the remaining 59.69% is consumed to cover direct variable costs.

To provide a clear and concise overview of the calculations, the final results of the Break-Even Point (BEP) and Margin of Safety (MoS) analysis are summarized in the table below:

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Table 2b: Summary of Break-Even Point (BEP) Analysis Results

Indicator	Calculation Result	Interpretation
BEP (Unit)	306 Patients / Year	The minimum number of patients the clinic must serve annually to cover all costs.
BEP (Rupiah)	IDR 244,800,000 / Year	The minimum annual revenue required to reach the break-even point.
Margin of Safety (MoS)	74.5%	The allowable percentage drop in targeted sales before the clinic suffers a financial loss.

Based on the summary above, the BEP (Unit) is rounded up to 306 patients, as it is impossible to serve a fraction of a patient. The interpretation of this result is that Griya Hayati Clinic must serve a minimum of 306 patients in a year (or approximately 25-26 patients per month) solely to cover all of its fixed and variable operational costs. In terms of revenue, the clinic needs to generate IDR 244,800,000 to reach this break-even state.

When compared to the management's projected sales target of 1,200 patients per year, the break-even point (306 patients) is at a very low and realistic level to achieve. This substantial gap results in a very high Margin of Safety of 74.5%. This indicates that the investment is in a highly secure position; the projected sales (1,200 patients) can miss or drop by up to 74.5% before Griya Hayati Clinic starts experiencing a loss. In other words, as long as the clinic can serve more than 25.5% of its sales target, the investment is already profitable. Therefore, based on the Break-Even Point (BEP) analysis, the operational risk of this investment is very low, and the procurement of the USG machine is declared HIGHLY FEASIBLE to implement.

The Payback Period (PP) method is an investment feasibility analysis method that focuses on measuring the time required to recover the entire initial investment capital (I_0). This method essentially measures how quickly a project can return to its capital break-even point, serving as a vital tool to assess liquidity and time risk. The core principle is that the faster the capital is returned, the lower the risk borne by the investor.

For this study, the Initial Investment (I_0) is IDR 400,000,000. Based on the data, the projected Net Cash Flows received are uneven (varying) each year. Therefore, the PP calculation cannot simply divide the Initial Investment by a single year's Net Cash Flow. Instead, the calculation must be conducted by compiling a Cumulative Cash Flow table to accurately identify exactly when the capital is fully recovered.

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Table 2c: Cumulative Cash Flow Calculation for the USG Machine Investment

Year	Net Cash Flow (IDR)	Cumulative Cash Flow (IDR)
0	(400,000,000)	(400,000,000)
1	296,375,000	(103,625,000)
2	305,375,000	201,750,000
3	314,375,000	516,125,000
4	323,375,000	839,500,000
5	323,375,000	1,162,875,000

From Table 2c, it can be observed that at the end of Year 1, the cumulative cash flow is still in a negative position amounting to (IDR 103,625,000). This indicates that by the end of the first year, the initial investment has not been fully recovered. However, at the end of Year 2, the cumulative cash flow shows a positive value of IDR 201,750,000. This proves that the investment capital has been recovered (reaching the break-even point) at some point between the end of Year 1 and the end of Year 2.

To determine the precise payback time (in months and days), we calculate the excess time required to cover the remaining capital shortfall at the beginning of Year 2. The calculation reveals that the excess time is 0.33933 years, which translates to 4 months and 2 days. Thus, the total Payback Period is 1 Year, 4 Months, and 2 Days.

Tabel 2d: Summary of Payback Period (PP) Analysis Results

Indicator	Calculation Result	Investment Criteria (Max. Limit)	Interpretation
Payback Period (PP)	1 Year, 4 Months, 2 Days	5 Years (Economic Life of the Asset)	**HIGHLY FEASIBLE**

The investment feasibility criterion using the Payback Period (PP) method states that the resulting payback period must be shorter than the maximum time limit required by the company. In the context of this study, the maximum time limit is the economic life of the USG machine itself, which is 5 years.

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Because the payback period (1 year, 4 months, 2 days) is significantly shorter than the economic life (5 years), it can be concluded that this investment carries a very low capital recovery time risk. Griya Hayati Clinic is projected not to wait long for its capital to return, meaning the net cash flows generated after this 1-year and 4-month period can be considered pure net profit. Therefore, based on the Payback Period (PP) method, the investment plan for procuring the USG machine at Griya Hayati Clinic is declared **HIGHLY FEASIBLE** to be executed.

The Net Present Value (NPV) method is a superior approach in investment feasibility analysis because it incorporates the concept of the Time Value of Money. This method calculates the Present Value of all future net cash flows and then subtracts the initial investment value (I_0). It essentially determines whether the future cash flows are still valuable when discounted back to "today's money."

The first step is to determine the Discount Rate (k), which is crucial for the analysis. The value of is determined by adding the Risk-Free Rate to the Risk Premium. For this study, the risk-free rate is represented by the average BI Rate (6.00%), and the risk premium (4.00%) reflects the private investment risk in the healthcare sector. Consequently, the Total Discount Rate (k) applied is 10.00%.

Table 2e: Present Value Calculation with Discount Rate (k) = 10%

Year (t)	Net Cash Flow (CFt) (IDR)	Discount Factor (DF)	Present Value (PV) of Cash Flow (IDR)
1	296,375,000	0.90909	269,431,818
2	305,375,000	0.82645	252,376,033
3	314,375,000	0.75131	236,186,223
4	323,375,000	0.68301	220,871,320
5	323,375,000	0.62092	200,785,615
	Total Present Value of Net Cash Flows		**1,179,651,010**

The NPV method is used as the primary indicator of profitability because it acknowledges that one Rupiah received in the future has a lower value than one Rupiah

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received today due to inflation and opportunity costs. By discounting all future cash flows using the 10% rate, the Total Present Value of the Net Cash Flows over the 5-year period amounts to IDR 1,179,651,010. To find the final NPV, the Initial Investment (IDR 400,000,000) is subtracted from the Total Present Value (IDR 1,179,651,010).

Tabel 2f: Summary of Net Present Value (NPV) Analysis Results

Indicator	Calculation Result	Investment Criteria	Interpretation
Net Present Value (NPV)	Positive IDR 779,651,010	NPV > 0 (Positive)	**HIGHLY FEASIBLE**

The final calculation shows that the Net Present Value (NPV) of the USG machine investment is a Positive IDR 779,651,010. According to the NPV method's feasibility criteria, an investment is declared Feasible if the NPV > 0 (Positive) and Not Feasible if the NPV < 0 (Negative).

This positive result indicates that the investment plan is not only capable of returning the initial capital of IDR 400,000,000 and covering the cost of capital (the 10% discount rate) but is also projected to provide a net added value (real profit) for Griya Hayati Clinic equivalent to nearly IDR 780 Million in today's money value. Therefore, based on the Net Present Value (NPV) method, the investment plan for procuring the USG machine is declared **HIGHLY FEASIBLE** to be executed.

DISCUSSION

The objective of this study was to examine the financial feasibility of procuring an Ultrasonography (USG) machine at Griya Hayati Clinic using BEP, PP, and NPV methods. The hypothesis that the investment is highly feasible was fully supported across all evaluated parameters. Regarding operational risk, the Break-Even Point (BEP) analysis revealed that the clinic only needs to serve a minimum of 306 patients annually (equivalent to IDR 244,800,000) to cover all fixed and variable costs. This figure is exceptionally low compared to the management's projected target of 1,200 patients per year, resulting in a robust Margin of Safety of 74.5%. This finding is consistent with previous results identifying BEP as a crucial indicator of operational safety limits. For example, this finding corroborates Kurniawati et al. (2025), who stated that calculating the break-even point provides vital information on the minimum units required to survive, with a lower break-even point

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indicating lower business risk. Furthermore, compared to the culinary sector which requires a massive volume to break even (Rhamdani et al., 2024), the medical service sector demonstrates a lower operational risk due to its higher contribution margins per unit. Moreover, concerning liquidity and time risk, the Payback Period (PP) analysis revealed that the initial capital investment of IDR 400,000,000 will be fully recovered in just 1 year, 4 months, and 2 days. This rapid capital recovery is significantly shorter than the asset's 5-year economic life. This finding aligns with Shaila et al. (2025), who emphasized that the Payback Period is an essential indicator for measuring how long investment funds will return, with shorter periods indicating stronger feasibility. The superior capital recovery rate in this USG investment demonstrates excellent cash flow efficiency, surpassing the payback periods found in commercial farming (Ahksan et al., 2025) and MSME sectors (Makruf et al., 2025). Finally, regarding long-term strategic profitability, the Net Present Value (NPV) analysis yielded a significant positive value of IDR 779,651,010, using a 10% discount rate to account for the time value of money. This finding reinforced the premise that the investment not only covers the cost of capital but also generates substantial real economic value for the clinic. This is consistent with Sanjaya (2025), who asserted that a positive NPV is an absolute indicator of investment feasibility. Although the nominal NPV is lower than large-scale hospitality businesses (Yahya et al., 2023), it is substantially higher than small-scale beverage productions (Kurniawati et al., 2025), confirming that as long as the NPV remains positive, the investment is financially sound. Collectively, these findings support the evidence from Griya Hayati Clinic, reinforcing the conclusion that integrating BEP, PP, and NPV provides a comprehensive validation of investment feasibility. As suggested by Salsabiila et al. (2025), an investment with a positive NPV and a rapid payback period is fundamentally sound and highly profitable to execute

CONCLUSION

The study investigates the financial feasibility of procuring an Ultrasonography (USG) machine at Griya Hayati Clinic in Madiun, Indonesia. The results confirmed that the investment plan is highly feasible across three critical financial dimensions: operational risk (BEP), liquidity risk (PP), and real profitability (NPV).

Recommendations

The study put forth the following recommendations: First, the clinic management should immediately realize this investment to capture market opportunities and minimize patient referrals to other facilities. Second, regarding financing, if the clinic plans to use external funding such as bank loans, management should ensure that the agreed interest rate (cost of capital) does not exceed 10%, as the investment's feasibility is strongly

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validated at this discount rate. Furthermore, management must maintain its marketing and operational strategies to ensure the annual target of 1,200 patients is consistently achieved, maximizing the projected cash flows.

Limitations and suggestions for further study

The study has some limitations worth addressing in further study. To begin with, the study solely focused on the BEP, PP, and NPV methods. Future studies would benefit from incorporating other financial parameters such as the Internal Rate of Return (IRR) to determine the exact internal yield, or the Profitability Index (PI). In addition, the study relied on static projections; therefore, future research should conduct a sensitivity analysis to test the investment's resilience against external variables, such as a 10% drop in patient volume, a 5% decrease in tariffs, or inflation in medical consumable costs. Finally, the use of a single independent clinic limits the generalization of the results; thus, comparative case studies involving different healthcare facility scales, such as Type C hospitals or independent specialist practices, would enhance the generalization of the findings.

REFERENCES

Ahksan, I. M., Millah, H., & Prasetyandari, C. W. (2025). Evaluasi kelayakan finansial usaha peternakan ayam broiler di CV Cendana Farm Indonesia. *Jurnal Ekonomi Syariah Pelita Bangsa*, 10(1), 149-160.

Ermawati. (2022). Studi kelayakan bisnis. Media Sains Indonesia.

Kurniawati, E., & Mardiyanto, M. (2025). Analisis kelayakan usaha produksi minuman fermentasi kulit buah naga. Tekper: Jurnal Teknologi dan Manajemen Industri Pertanian, 6(1), 12-20.

Makruf, A., & Faradila, F. (2025). Analisis studi kelayakan bisnis UMKM es kacang merah "Warung Bento" ditinjau dari aspek pasar, pemasaran dan finansial. Jurnal Ilmiah Multidisiplin, 3(6), 377-383.

Rhamdani, A., & Saputra, A. (2024). Penelitian akuntansi manajemen dengan menggunakan metode analisis keuangan BEP, NPV, PP, PI pada UMKM kuliner masakan Aceh yang bernama "Mie Aceh Mustika". Indonesian Journal of Economics and Strategic Management, 2(2), 1871-1880.

Salsabiila, D. A. (2025). Kelayakan finansial usahatani kopi robusta. Jurnal Semesta Ilmu Manajemen dan Ekonomi (J-SIME), 1(4), 1320-1334.

Sanjaya, I. G. N. B. (2025). Analisis kelayakan investasi alat berat pada pertambangan lime stone. Blantika: Multidisciplinary Journal, 3(6), 862-871.

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Shaila, S., Setyaningsih, E. D., & Islami, V. (2025). Business feasibility analysis of RBT Wedding Decoration using the Payback Period (PP) and Profitability Index (PI) methods. Jurnal Multidisiplin Sahombu, 5(5), 1387-1401.

Sudiantini, D. (2022). Manajemen keuangan: Teori dan praktik. Adab.

Sugiyanto. (2020). Manajemen keuangan lanjutan. Scopindo Media Pustaka.

Yahya, M. I., Iryani, N., & Satria, D. (2023). Analisis kelayakan bisnis dari segi aspek keuangan pada Carano Homestay di Kota Bukittinggi. Jurnal Kajian Pariwisata, 5(2), 86-93.

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