
Investment Analysis In Ct Scanner Procurement Project Between Pt. Sinar Kemajuan Abadi And Hospital In Bandung “Hasan Sadikin”**Mariana Rachmawati ¹, Indri Gustirani ²**¹WIDYATAMA UNIVERSITY BANDUNG 2021²WIDYATAMA UNIVERSITY BANDUNG 2021¹mariana.rachmawati@widyatama.ac.id ,²indri.gtr@gmail.com**Article History:** Received: 10 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 20 April 2021

Abstract:CT Scanner is an indispensable medical tool by the hospital to support public health services, especially as a tool to diagnose the disease more deeply, due to the increasing needs of the community will need to check with a ct scan with a high degree of accuracy then PT Sinar Kemajuan Abadi do product marketing strategy with the cooperative agreement with the procurement of hospital ct scan x. Analysis of investment decisions are then PT Sinar Kemajuan Abadi investment feasibility analysis on project procurement cooperation CT Scanner, PT Sinar Kemajuan Abadi with hospitals "x". Research by conducting a sensitivity analysis to determine the variable Payback Period (PP), Net Present Value (NPV), Internal Rate of Return (IRR), and Profitability Index (PI). Results showed that the investment worth it for a period of return on investment (Payback Period) of less than 10 years that is for 4 years and 3 months, the net present value (NPV) is positive IDR 573 792 338, -, The Internal Rate of Return (IRR) 24.45%, and Profitability Index (PI) is more than 1 is 1:18.**Keywords:** Investment Analysis

1. Introduction

Hospital is a means of health efforts that carry out health service activities and can be used for the education of health and education personnel. Hospital health services are service activities in the form of outpatient services, inpatient services and emergency services related to medical services and medical support. To support health services, hospitals require a large investment (investment) program to procure equipment. In the current era of globalization, hospitals are forced to provide services bermutu, “cost effectiveness” dan responsif terhadap kebutuhan pelanggan (pasien). For this reason, changes are needed, especially in terms of financing and competitive strategies.

One of the tools needed by the hospital is a CT scan. CT scans can be used to clarify and strengthen diagnoses that ordinary x-ray images cannot handle, because CT scans can see the multi-dimensional organs of the body that are projected onto the monitor screen so that the radiologist can more accurately diagnose the disease and the indication of the examination becomes broader and more extensive. high diagnostic accuracy.

A proposed investment involves the use of available resources now and is expected to generate greater resources in the future. The obstacle faced by the hospital at this time is the increasing public demand for hospital services with the availability of CT Scan tools, but on the other hand the hospital has limited funds for the procurement of CT Scan tools, because these tools are imported goods with quite high prices. the condition of the current exchange rate is high enough that it has an impact on the cost of the CT Scan tool. Therefore, PT. Sinar Kemajuan Abadi as the sole distributor of a CT Scan product brand in Indonesia entered into an agreement to cooperate in the procurement of CT Scan products at Hasan Sadikin Hospital with a profit sharing system, in this case the profit and cost sharing in accordance with the agreement of both party.

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2. Literature Review and Hypothesis

- **Net Present Value (NPV)**

The NPV of an investment is the difference between the Present Value (PV) of proceeds and the PV of initial investment (I) during its economic life, at a certain discount rate. The discount rate used to calculate the NPV is the difference between the PV of proceeds and the PV of initial investment, so the NPV can be positive or negative. If the NPV is positive, the investment project is accepted, but if it is negative, the project proposal is rejected. Meanwhile, Gitman (2009) states that: *Net Present Value (NPV) is found by subtracting a project's initial investment from the present value of its cash inflows discounted at a rate equal to the firm's cost of capital.*

- **Internal Rate of Return (IRR)**

Internal Rate of Return (IRR) is the discount rate that forces a projects NPV to equal zero. Meanwhile, Gitman (2009) states that Internal Rate of Return (IRR) is the discount rate that equates the NPV of an investment opportunity with \$0 (because the present value of cash inflows equals the initial investment). It is the compound annual rate or return that the firm will earn if it invest in the project and receives the given cash inflows.

- **Profitability Index (PI)**

Profitability Index (PI) is the ratio between PV of cash flow and PV of investment, if PV is greater than 1, it means that PV of cash inflow is greater than PV of investment, so that the NPV is greater than 0 and the proposed project is eligible to be accepted. Brealey & Myers (2017: 106) discloses PI calculations as follows :

$$PI = \frac{\sum_{t=1}^n \frac{CF}{(1+r)^t}}{CF_0}$$

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Payback Period (PP)

Payback period is the amount or time required for a firm to recover its initial investment in a project, as calculated from cash inflows. If the payback period is shorter than the life of the project, the investment proposal can be accepted, however, if the payback period is longer than the life of the project, the investment proposal can be rejected. The payback period is calculated by dividing the initial investment with the annual proceeds. According to Gitman (2009)

Hypothesis

H1. It is certain that the CT-Scan procurement project will be carried out by looking at the positive Net Present Value (NPV) with the economic life or benefits at a certain discount rate.

H2. By calculating the Internal Rate of Return (IRR), it is certain that the CT-Scan procurement project can be accepted because the interest rate exceeds the required rate of return..

H3. The CT-Scan procurement project can be accepted because the calculation of the Profitability Index (PI) produces an NPV value greater than 0.

H4. This project is expected to be accepted because the repayment period of all the capital used in this project is shorter than the life of the project..

3. Research Methodology

The type of research used in this research is descriptive research with a case study approach. Exponential Smoothing Method with Trend Adjustment; analyze the amount of revenue received by the company and the costs borne by the company, including depreciation costs for the equipment; analyze the feasibility of investing using the calculation of the Net Present Value NPV), Interest Rate of Return (IRR), Payback Period, and Profitability Index (PI); and analyzing investment risk using sensitivity analysis, scenario analysis, and break-even cash flow methods.

Research Finding and Argument

Costs borne by the company and the hospital are maintenance costs every 3 (three) months periodically but not including the cost of replacing equipment spare parts in case of damage and other additional accessories costs.

Table 4.1.
Cash Flow Projection of PT. Sinar Kemajuan Abadi

Year to -	Company Cash Flow
0	IDR (3.120.000.000)
1	IDR 715.152.458
2	IDR 652.504.712
3	IDR 726.969.761
4	IDR 810.575.073
5	IDR 904.293.271
6	IDR 1.009.194.888
7	IDR 1.126.457.982
8	IDR 1.257.378.684
9	IDR 1.403.382.756
10	IDR 1.566.038.285

Source: Processed Data

- **Net Present Value (NPV)**

Companies use their own capital (cost equity) without making a loan to the bank so that the cost of debt = 0. Before determining the amount of Net Present Value, the WACC (Weighted Average Cost of Capital) is calculated, The calculation for determining the WACC with 100% equity and 0% debt is as follows :

$$\text{WACC} = k_b(1-T) (D/TA) + K_e(E/TA)$$

k_b = 10.5% (based on the average bank loan interest rate)

k_e = 20%

T = 11.5%

D = 0 (he company does not make bank loans)

E = IDR 3.120.000.000,-

TA = IDR 3.120.000.000,-

D/TA = 0

E/TA = 1.00

WACC = 20%

Disc factor = 20%

Where it is known if the value of the discount factor is 20 %. For more details, the NPV calculation can be seen in the table as follows :

Table 4.2.

NPV Calculation Results with Discount Factor 20%

Tahun	Cash Flow	PVIF 20%	NPV
0	(3,120,000,000)	1	(3,120,000,000)
1	715,152,458	0.8333	595,960,381
2	652,504,712	0.6944	453,128,273
3	726,969,761	0.5787	420,700,093
4	810,575,073	0.4823	390,902,331
5	904,293,271	0.4019	363,415,184
6	1,009,194,888	0.3349	337,977,326
7	1,126,457,982	0.2791	314,373,749
8	1,257,378,684	0.2326	292,426,095
9	1,403,382,756	0.1938	271,984,980
10	1,566,038,285	0.1615	252,923,926
		NPV	573,792,338

Source: Processed Data

NPV assessment is needed to assess the investment offered in proportion to the level of return, where the NPV results are positive, namely equal to IDR 573,792,338,-.

- **Internal Rate of Return (IRR)**

Calculations using IRR are carried out by trial and error to determine the interest rate that results in positive and negative NPV.

Table 4.3.

The Calculation Results of Internal Rate of Return (IRR)

Year	Cash Flow	NPV ₁ (discount factor = 20%)	NPV ₂ (discount factor = 25%)
0	(3,120,000,000)	(3,120,000,000)	(3,120,000,000)
1	715,152,458	595,960,381	572,121,966
2	652,504,712	453,128,273	417,603,016
3	726,969,761	420,700,093	372,208,517
4	810,575,073	390,902,331	332,011,550
5	904,293,271	363,415,184	296,318,819
6	1,009,194,888	337,977,326	264,554,385
7	1,126,457,982	314,373,749	236,235,361
8	1,257,378,684	292,426,095	210,953,138
9	1,403,382,756	271,984,980	188,358,845
10	1,566,038,285	252,923,926	168,152,080
	IRR	24.45%	24.45%

Source: Processed Data

So that the results obtained from the IRR value of 24.45%, where the value is greater than the WACC value of 20%. From the above results, the interpolation calculation is carried out with a formula like the formula above, as follows :

$$\begin{aligned}
 \text{IRR} &= r_1 + \frac{\text{NPV}_1}{\text{NPV}_1 - \text{NPV}_2} (r_2 - r_1) \\
 &= 20\% + \frac{573,792,338}{573,792,338 - (61,482,323)} (25\% - 20\%) \\
 &= 0.2 + 0.9(0.05) \\
 &= 0.25 \\
 &= \mathbf{25\%}
 \end{aligned}$$

After calculating the interpolation with a discount rate of 25% and because the IRR value is greater than the WACC, the investment is feasible or acceptable.

- **Profitability Index (PI)**

By using a discount factor of 20%, the Profitability Index (PI) calculation can be seen in the table as follows :

Table 4.4.
The Calculation Results of Profitability Index (PI)

Year	Cash Flow	NPV
0	(3,120,000,000)	(3,120,000,000)
1	715,152,458	595,960,381
2	652,504,712	453,128,273
3	726,969,761	420,700,093
4	810,575,073	390,902,331
5	904,293,271	363,415,184
6	1,009,194,888	337,977,326
7	1,126,457,982	314,373,749
8	1,257,378,684	292,426,095
9	1,403,382,756	271,984,980
10	1,566,038,285	252,923,926
	PI	1,18

Source: Processed Data

By looking at the results above, the investment project is feasible to implement because the PI is above 1.

- **Payback Period**

Because cash flows are different every year, the payback period calculation is done by adding up the cash flows for each year. Payback period describes the period of time required to pay back all costs incurred by an investment. The return plan using the payback period method can be seen in the following calculation :

Table 4.5.
Payback Period Calculation Results

Year	Cash Flow	Net Cash Flow	Description
0	(3,120,000,000)		
1	715,152,458	715,152,458	1 year
2	652,504,712	1,367,657,170	1 year
3	726,969,761	2,094,626,931	1 year
4	810,575,073	2,905,202,004	1 year
5	904,293,271	3,809,495,275	3 month
6	1,009,194,888	4,818,690,162	
7	1,126,457,982	5,945,148,144	
8	1,257,378,684	7,202,526,828	
9	1,403,382,756	8,605,909,585	
10	1,566,038,285	10,171,947,870	
			4 year 3 month

Source: Processed Data

From the results of the above calculations, it can be seen that the payback period is smaller than the investment age, which is 4 years 3 months so that the CT Scan investment is feasible to be carried out by PT. Sinar Kemajuan Abadi.

3. Conclusion and Suggestion

• Conclusion

Discount factor used in making investment decisions of PT. Sinar Kemajuan Abadi is 20% which is obtained from the calculation of the WACC (Weighted Average Cost of Capital). CT Scan investment eligibility of PT. Sinar Kemajuan Abadi seen from the calculation of investment appraisal using the Payback Period (PP), Net Present Value (NPV), Internal Rate of Return (IRR) and Profitability Index (PI). From the research results, it can be concluded that the CT scan investment is feasible to implement. The calculation results are as follows :

• Net Present Value (NPV)

The NPV value is positive, namely IDR 573,792,338, - with a discount factor of 20%, while with a discount factor of 25% a negative Net Present Value (NPV) is obtained (IDR 61,482,323, -).

• Internal Rate of Return (IRR)

The IRR value is 24.45%, then from these results the interpolation calculation is carried out with a positive NPV (20%) of IDR 573,792,338 and a negative NPV (25%) of (IDR 61,482,323, -) resulting in an IRR of 25%.

• Profitability Index (PI)

By using a discount factor of 20%, the results of the Profitability Index (PI) are 1.18 so that the company can accept this project.

• Payback Period (PP)

Because the cash flow is different every year, the payback period calculation is done by adding up the cash flows for each year, so that the return on investment is 4 years and 3 months. This period is less than the investment period of the project.

• Suggestion

Before doing the cooperation is expected PT. Sinar Kemajuan Abadi conducts analysis and research so that the results of these studies can be used by parties of PT. Sinar Kemajuan Abadi as a material for consideration in making CT Scan investment decisions in Hasan Sadikin Hospital so that the company can determine whether the investment is feasible or not, especially in this case PT. Sinar Kemajuan Abadi use your own capital with a high enough risk. PT. Sinar Kemajuan Abadi must conduct a feasibility analysis on a CT Scan investment in the hospital to minimize the risk so that the company will not feel disadvantaged by the cooperation agreement with the hospital.

References

1. Brealey, R.A. & Myers S.C. 2017. Principles of Corporate Finance, 10th edition, New York: McGraw Hill International Edition
2. Garrison Noreen, 2015, Managerial Accounting, 15th edition, Translation A. Totok Budisantoso, Jakarta: Salemba Empat
3. Gittman, Lawrence J., 2003. Principles of Managerial Finance, Tenth Edition, Addison - Wesley, USA.
4. Hussain, H., I., Kot, S., Kamarudin, F., & Mun, W., C. (2020). The Nexus of Competition Freedom and the Efficiency of Microfinance Institutions. *Journal of Competitiveness*, 12(2), 67–89.
5. Brigham, Eugene F. & Houston Joel F., 2007. Essentials of Financial Management, Thomson Pte. Ltd., USA.
6. R.A. Supriyono, 1991. Management Accounting 3. Management Control Structure. 1st Edition, Jogjakarta: STIE YKPN.
7. Sumastuti, 2006 "The Advantages of NPV as an Analysis Tool for Investment Feasibility Test and Its Application" <http://jurnal.bl.ac.id/wpcontent/uploads/2007/01/BEJ-v3-n1-articles7-August2006.pdf> 8 November 2007.
8. Mardalis. 2010. Research Methods (A Proposal Approach) Edition 1. Jakarta: Earth Aksar
9. Roy Bando Swandaru (2008) in his thesis entitled "Analysis of Investment Decisions for Geothermal Power Plant Projects", Master of Management, Padjadjaran University, Bandung
10. Tanti Ferianti with the title "Investment Analysis of CT Scan Procurement Program at Dr. Lung Hospital. HA. Rotinsulu "(2005), Master of Management, Padjadjaran University, Bandung

11. Tomka, G., & Kisić, V. (2018). From Inconsistencies to Contingencies-Understanding Policy Complexity of Novi Sad 2021 European Capital of Culture. *Croatian International Relations Review*, 24(82), 62-89.