ANALISIS INVESTASI PEMBANGUNAN BANGSAL KELAS 3 DI RS PKU MUHAMMADIYAH YOGYAKARTA UNIT 2

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INTISARI

Latar Belakang: Rumah Sakit PKU Muhammadiyah Yogyakarta Unit 2 adalah investasi pengembangan dari RS PKU Unit 1 karena tingginya permintaan (*demand*) pasien rawat inap dengan BOR 70,13 % dan LOS 4,18 hari. RS PKU Unit 2 mulai beroperasi tahun 2009, memiliki rawat inap (bangsal) kelas 3 sebanyak 30 TT yang terbagi 2 bangsal yaitu bangsal Naim dan Firdaus. Di awal proyek pernah dilakukan studi kelayakan dengan hasil perkiraan lama investasi (*payback period*) adalah 10 tahun, namun arsip dokumentasi data hasil IRR dan NPV tidak ditemukan. Setiap proyek investasi harus dianalisis kelayakan untuk dilanjutkan atau tidak. Oleh karena itu diperlukan suatu analisis investasi pembangunan bangsal kelas 3 di RS PKU Muhammdiyah Yogyakarta Unit 2.
Metode: Jenis penelitian ini adalah deskriptif kualitatif dengan instrumen penelitian berupa dokumentasi dan data keuangan RS. Metode analisis investasinya adalah *payback period* (PP) tanpa & dengan diskonto, *Net Present Value* (NPV), dan *Internal Rate of Retur*n (IRR).
Hasil dan pembahasan: Proyek pembangunan bangsal kelas 3 di RS PKU Muhammadiyah Yogyakarta Unit 2 memiliki PP tanpa diskonto = 6 tahun 1,5 bulan artinya investasi layak, PP dengan diskonto = 7 tahun 3,5 bulan artinya investasi layak, hasil NPV = Rp 3.546.653.649,- artinya investasi layak, dan IRR = 9 % artinya investasi layak.
Kesimpulan: Proyek investasi pembangunan bangsal kelas 3 di RS PKU Muhammadiyah Yogyakarta Unit 2 secara keseluruhan berdasar analisis keuangan adalah "layak" untuk dilanjutkan.

Kata kunci : Analisis Investasi, Metode IRR-NPV-PP, Rumah Sakit.

INVESTMENT ANALYSIS OF DEVELOPMENT WARDS GRADE 3rd IN PKU MUHAMMADIYAH HOSPITAL UNIT 2 OF YOGYAKARTA

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ABSTRACT

Background: *PKU Muhammadiyah Hospital Unit 2 of Yogyakarta is a development investment of PKU Hospital Unit 1 due to high demand (demand) of hospitalized patients with BOR 70.13% and LOS of 4.18 days. PKU Hospital Unit 2 began operation in 2009, has inpatient (ward) grade 3 by 30 TT divided 2 wards are wards Naim and Firdaus. At the beginning of the project ever undertaken a feasibility study with the results of the approximate length of investment (payback period) is 10 years, but the archive data documentation IRR and NPV results not found. Each investment project must be analyzed eligibility for continued or not. Therefore we need an analysis of investment in the construction of 3-class wards PKU Muhammadiyah Hospital Unit 2 of Yogyakarta.*
Method: *Kind of this research is descriptive qualitative research, with instruments in the form of documentation and hospital financial data. The method of analysis is the investment payback period (PP) without and with the discount rate, the Net Present Value (NPV), and Internal Rate of Return (IRR).*
Results and discussion: *The construction project of grade 3rd wards in PKU Muhammadiyah Hospital Unit 2 of Yogyakarta are PP at no discount = 6 years 1,5 months, worth of investment means, PP at a discount = 7 years 3,5 months, worth of investment means, The result of NPV = Rp 3.546.653.649.- means the investment is worth it, and IRR = 9 %, worth of investment means.*
Conclusion: *Development of investment projects in the Ward Grade 3 PKU Muhammadiyah Hospital Unit 2 of Yogyakarta overall financial analysis is based on "feasible" to continue.*

Keywords *: Investment Analysis, IRR-NPV-PP Methods, Hospital.*

INTRODUCTION

Now, The development of mobile hospital is very rapid and creating a tight competition. It requires hospitals to be more sensitive, critical, and reactive to a change, either in the political, social, cultural, and economic. Specific areas of the economy, including investments to be made by the hospital to be ready to compete with global developments[1]

In fact every investment project is not only technically capable realized (realizable), but also must be economically feasible with commercial orientation / profit. So financial decisions should be based on a feasibility study (investment analysis) is quite mendalam.[2]

Criteria for investment analysis of financial aspect to determine the feasibility of an investment project can use several methods, namely Payback Period (PP), Net Present Value (NPV) and Internal Rate of Return (IRR).[3]

PKU Muhammadiyah Hospital of Yogyakarta Unit 2 is a development / expansion of PKU Muhammadiyah Hospital of Yogyakarta Unit 1. PKU Muhammadiyah Hospital of Yogyakarta Unit 1 has a number of visits to hospitalized patients is quite high. According to the EDP Section Supervisor, the number of inpatient visits is 70.13% and BOR LOS 4.18 days per November 2007.[4]

On the other hand, according to the Hospital Research and Development Manager, said that the PKU Unit 1 has limited land for expansion. This is evident from the number of rooms are still lacking wards, outpatient clinic size is small and cramped waiting room patients. All of this happens because the first PKU Unit 1 at the beginning of the establishment does not prepare enough land around PKU Hospital Unit 1 to anticipate future developments. The location of the hospital is located in the city center of Yogyakarta is the narrow land. That efforts to increase the number of rooms or expanding in PKU Unit 1 has become a very difficult and impossible.

Based on the above matters, the BOR & LOS increasing and land constraints. So the way out to overcome the expansion is done by setting the PKU

Muhammadiyah Hospital Unit 2 located in the new land in Limestone village, Sleman, Yogyakarta separate from Hospital Unit 1.

According to the Operations Manager, stated that the PKU Muhammadiyah Hospital Unit 2 began operation in 2009. Now PKU Muhammadiyah Hospital Unit 2 has been operating for about 5 years and it looks crowded patient. Data in 2012 known occupational level bed (BOR) also includes relatively high at 71.5% on average. Later in class 3 wards now, in the year 2012 has patient visits are almost always full every day. Grade 3 wards have a total of 30 beds divided into 2 wards namely Naim wards with number 10 beds and Firdaus ward number 20 beds with fare price 100,000 / day / bed.[4]

According to the directors, the establishment of ward 3 class was originally intended for poor patients, orphans and patients are secured by Jamkesmad / Askes / BPJS. Patients are expected to be a segment of the market that could fill the number of inpatient visits in the ward. Although the rates for these 3 classes ward the least, however infrastructure facilities are given in ward 3 class and quality that is more feasible than the standard 3-class wards in other hospitals.

Therefore, the more crowded the number of visits and inpatient by BOR high at wards grade 3rd in PKU Muhammadiyah Hospital of Yogyakarta Unit 2 and the need for any project investments are always made to study investment analysis in order to understand the magnitude of the achievement or success of the investments already incurred, as well as whether or not the continued investment the. So very relevant now done " Development Investment Analysis at Ward Grade 3rd in PKU Muhammadiyah Hospital of Yogyakarta Unit 2".

This research problem is whether the results of the investment analysis development at ward grade 3rd in PKU Muhammadiyah Hospital of Yogyakarta Unit 2 with the PP method, NPV, and IRR is feasible or not.

MATERIALS AND METHODS

This type of research is a descriptive study with a qualitative approach. Subjects in this study is the chief financial officer, the head of the class 3 wards

space, operational managers, and research & development hospital managers. Object of this study is financial data PKU Muhammadiyah Hospital of Yogyakarta Unit 2 related to Grade 3rd wards.

The location of this research is done in class 3 wards are Naim ward and Firdaus ward in PKU Muhammadiyah Hospital of Yogyakarta Unit 2 is located at Jl. Raya Wates KM 2, Tamantirto, Gamping, Kasihan, Sleman, Yogyakarta. This study was conducted in January-February 2013.

Operational definition aims to help or as a guide in the study :

1. Ward Grade 3 is one of a class of inpatient installations that have the lowest rates and allocated to a health / BPJS.

2. Investment Analysis is a comprehensive study of all aspects of an investment is worth it or not to do.

3. Statement of Income is a financial statement that describes the position of revenue earned and expenses incurred during a specific period, the bias is 1 year. So that it can be calculated how much profit or loss the hospital for 1 year. In this study the income statement obtained directly by accessing financial data from the financial section PKU Muhammadiyah Hospital of Yogyakarta Unit 2.

4. Data Capital Investment is a financial condition that describes the amount of funds spent by PKU Muhammadiyah Hospital of Yogyakarta Unit 2 to buy land, build a building, buy supplies and equipment class 3 wards and all expenses incurred (working capital) in order to ward Grade 3 capable of operating in the first year (2009). Working capital includes Installation Costs and Fees Non Inpatient Class 3. Sources of data needed to calculate the points above is obtained from the hospital's financial. [5]

5. Table Depreciation is the whole condition of the initial purchase price of assets and the calculation of depreciation loading per year for 10 years. There are assumptions in the calculation are: depreciation method is a linear method, residual value is 0, the economic life of each gear / equipment is estimated to be 3 types (3 years, 5 years and 10 years). The data required to calculate the points above is obtained from the hospital finance department.

6. Cash Flow (Net Cash Flow) is a state all the money in cash or assets that are owned by the hospital in a given period, in this study period is 1 year. Cash flow is calculated based on profit or loss of data per year, the initial capital investment and depreciation tables.[6]

The formula to calculate the cash flows are as follows:

- Gross Profit = Total Revenue -(Instalasi Cost+Non Installation Cost)
- EBT = Gross Profit - Depreciation Cost
- EAT = EBT - Tax
- Proceeds (Net Cash Flow) = EAT + Depreciation Cost
- Description: There are assumptions (tax) is 20%.[6]

7. *Payback Period (PP)* is the length of time required to recover the costs of investment. This method tries to measure how quickly the investment can be returned. Unit result of this method is not a percentage, but time.

The formula Payback Period (PP) is as follows:

$$Payback\ Period\ (PP) = n + \frac{a-b}{c-b} \ x\ 1\ tahun$$

Description :

  n = last year in which the amount of cash flow still can not cover the
    initial investment

  a = number of initial investment

  b = number of cumulative cash flow in year n

  c = number of cumulative cash flow in year n +1

Case in cash flow each year with a different number:

A proposed investment projects worth Rp.600.000.000,- the economic life of 5 years. Terms payback period of 2 years. The table about example of annual cash flow can be seen in Table 1.

Table 1 Example of Annual Cash Flows

Years	Cash Flows (Rp)
1	300.000.000
2	250.000.000
3	200.000.000
4	150.000.000
5	100.000.000

While the cumulative annual cash flow can be seen in Table 2.

Table 2 Examples of Cumulative Cash Flow Annual

Years	Cash Flows (Rp)	Cumulative Cash Flow (Rp)
1	300.000.000	300.000.000
2	250.000.000	550.000.000
3	200.000.000	750.000.000
4	150.000.000	900.000.000
5	100.000.000	1.000.000.000

Calculation of Payback Period (PP) with annual cash flows, as follows:

$$\text{Payback Period (PP)} = 2 + \frac{Rp.600.000.000 - Rp.550.000.000}{Rp.750.000.000 - Rp.550.000.000} \times 1 \text{ tahun}$$

$$= 2{,}25 \text{ years} \approx 2 \text{ years } 3 \text{ month}$$

Conclusion of the above calculation is that if the payback period is more than the required time period, then the proposed investment project is not worth continuing. Vice versa, if the payback period is less than the required time period, then the proposed investment project worth continuing.[7]

8. *Net Present Value (NPV)* is a method of assessment / evaluation on an investment that compares the net present value of cash flows are realized by the net present value of cash flows in the initial investment. Unit is the result of this method of money (dollars).

Mathematically, the NPV can be calculated by a formula which is as follows:

$$NPV = \sum_{t=1}^{n} \frac{CF_t}{(1+k)^1} - I_0$$

Description:

NPV = Net Present Value $\qquad$ n = Age project

C = cash flow in year t $\qquad$ t = 1,2,3,4 etc.

k = cost of capital / interest rate $\qquad$ I_0 = initial expenditure

In the NPV method, the yardstick used is as follows:

1. NPV> 0, the project profitable and worth continuing.

2. NPV <0, the project is not worth continuing.

3. NPV = 0, neutral, or are at Break Even Point (BEP).

Examples of cases using the Net Present Value (NPV):

A company is considering an investment project proposed by Rp.700.000.000, - assuming the rate of return / discount (*i*) required by 15%. As an example of the estimated annual cash flows are presented in Table 3.

Table 3 Example of Annual Cash Flows

Years	Cash Flows (Rp)
1	300.000.000
2	250.000.000
3	200.000.000
4	150.000.000
5	100.000.000

By using the Net Present Value (NPV), the results of sample calculations of cash flows at a rate of 15% can be seen in Table 4 below.

Table 4 Example of Calculation of Cash Flow to Interest Rate 15%

Year (a)	Cash Flow (Rp) (b)	Interest Rate (c)	Present Value (d) = (b) x (c)
1	300.000.000	0,8696	260.880.000
2	250.000.000	0,7561	189.025.000
3	200.000.000	0,6575	131.500.000
4	150.000.000	0,5718	85.770.000
5	100.000.000	0,4972	49.720.000
Total Present Value (PV)			716.895.000
Initial Invesment (OI)			700.000.000
Net Present Value (NPV)			16.869.000

Kesimpulan dari contoh kasus di bawah ini (Tabel 4) adalah nilai NPV yang diperoleh adalah positif sebesar Rp.16.895.000,- maka usulan proyek investasi ini layak dilanjutkan.[8]

9. *Internal Rate of Return* (IRR) is a method of valuation / investment analysis to find the interest rate equates the present value by way of cash inflows to the initial investment. The result is a percentage units.

Equations of the classical theory to calculate the IRR is as follows:

$$IRR = \sum_{t=1}^{n} \frac{CF_t}{(1+k)^1} - I_0 = 0$$

Then the IRR can be estimated with the following formula:

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

How to calculate the investment proposal with the IRR method, carried out by trial and error over the discount rate is close to the value IRR of i_1 and i_2. This method is called the classical method with manual calculations. [9]

But in this study did not use the manual calculation. IRR Calculations performed in this study with the help of software Microsoft Excel version 2003 edition. With the formula / formulas as shown in Table 5 below.

Table 5 Examples of IRR Investment Analysis Methods

Investment Analysis Component		Discounted Proceeds
Initial Capital Investment		-xxxxxxxxx
1st Year	(2009)	xxxxxxxx
2nd Year	(2010)	xxxxxxxx
3rd Year	(2011)	xxxxxxxx
4th Year	(2012)	xxxxxxxx
5th Year	(2013)	xxxxxxxx
6th Year	(2014)	xxxxxxxx
7th Year	(2015)	xxxxxxxx
8th Year	(2016)	xxxxxxxx
9th Year	(2017)	xxxxxxxx
10th Year	(2018)	xxxxxxxx
Note : IRR is calculated using Microsoft Excel 2003 software with formula / formulas as follows =IRR (B2 : B12 ; 7%)		**IRR = X %**

Based on the IRR method, the yardstick used is:

1. IRR> MARR, then the project viable / acceptable

2. IRR <MARR, then the project is not feasible / rejected

MARR is the Minimum Attractive Rate of Return, which if invested in the bank with an interest rate of savings / deposits in a given year. In this study it is assumed MARR 7%.[10]

On investment projects carried out by way of the selection of one or more alternative projects, then the project is selected that produces the largest IRR.[11]

10. Rating the appropriateness of the overall investment is based on the eligibility of all methods include methods of PP, NPV and IRR. If the entire method is feasible result, the overall investment is worth continuing, and vice versa.

In order to guarantee the validity of the data in this study, conducted triangulation techniques which include: Triangulation source, this technique is used to test the credibility of the data is done by checking the data that has been obtained through several sources, chief financial officer, part of R & D, and the head of the wards Grade 3rd at PKU Muhammadiyah Unit 2 Hospital of Yogyakarta.[12]

The next stage of data processing and the feasibility assessment based on the data that has been collected. In this study data processing using statistical software edition Microsoft Excel version 2003.

RESULT

Wards Grade 3rd at PKU Muhammadiyah Unit 2 Hospital of Yogyakarta in total amounted to 30 TT (bed) at a price rate of $ 100.000/per day / per TT. From the data in 2012 known bed occupation rate (BOR) also includes relatively high at 71.5% on average, or about 21 patients / day. Ward Grade 3rd consists of 2 wards patients were divided into 6 room for patient, 2 room for nurse (nurse station) and 30 beds (TT) patients each of its space consisting of 5 beds (TT).

At the beginning of the construction of Wards Grade 3rd PKU Muhammadiyah Hospital of Yogyakarta Unit 2 was never carried out a feasibility study of investment. The feasibility study was conducted for the construction of PKU Muhammadiyah Hospital of Yogyakarta Unit 2 overall units in the hospital which among others include: Inpatient, outpatient, emergency room, pharmacy, radiology, hemodialysis, laboratory, etc.

But unfortunately archival documentation of the results of the feasibility study of the construction investment PKU Unit 2 can not be found / lost. It's just based on the oral testimony of the Research and Development Manager and Operations Manager PKU Muhammadiyah Hospital Unit 2 stated they remember that the results of the count Payback Period (PP) is estimated at between 8-10

years, and shall take time payback period of 10 years as the value of the benchmark requirements for research this. With notes that the PP value is for the entire unit in PKU Muhammadiyah Hospital of Yogyakarta Unit 2.

Later still of Research and Development Manager RS testimony stating that the value of the results of the feasibility study then calculated assuming that the estimated inpatient ward visits grade 3rd is number 1 patients / day.

As for the results of the NPV and IRR, the two parties do not mention clearly. So the researchers assume comparable data for NPV and IRR are considered non-existent.

1. Initial Capital Investment in Ward Grade 3rd

In the business process PKU Muhammadiyah Hospital of Yogyakarta Unit 2 at the time of the initial build and equip supplies and equipment, the PKU Muhammadiyah Hospital of Yogyakarta Unit 2 need to spend some money to buy land, build buildings / facilities and purchase supplies and equipment. The amount of funds expended called "Capital Asset Purchase Beginning".

Then after a known initial value of capital asset purchases further calculated the amount of "Capital Investment" (Initial Investment) to add to the "Working Capital", ie all costs incurred in order to ward Grade 3rd in PKU Muhammadiyah Unit 2 Hospital of Yogyakarta can operate in 2009. Working Capital consists of the installation cost and the Non Installation cost of Ward Grade 3rd. Details of the calculations can be seen in Table 6 below.

Table 6 Calculation of Initial Capital Investment

Description	Count (RP)
Initial asset purchase	2.790.439.000
Working Capital	
Installation Cost in 2009	1.491.439.073
Non Installation Cost in 2009	7.870.000
Initial Capital Investment	**4.289.748.073**

2. **All Assets Depreciation in Ward Grade 3rd**

Of all assets / assets of the results of the initial investment capital expenditure will have the consequence of the emergence of Cost Depreciation (depreciation). The depreciation calculation in accounting PKU Muhammadiyah Hosital of Yogyakarta Unit 2 is assumed to use the "Linear Method" (straight line method). Where the assets have a fixed amount of depreciation expense each year and each type of asset is assumed to have "Economic Life Period" different (eg, 3 years, 5 years, and 10 years). In addition all types of assets are assumed to have no "Residual Value" at the end of its economic life period. In other words "Residual Value" is Rp 0, -.

The formula to calculate depreciation with "Linear Method" is [9] :

$$\text{Depreciation} = \frac{(\text{Price Buy Investing An Asset}) - (\text{Residual Value})}{\text{Economic Life Period}}$$

Depreciation costs incurred on wards Grade 3 PKU Muhammadiyah Unit 2 Hospital of Yogyakarta each year can be seen in Appendix 1. In Appendix 1 it is shown that the depreciation of the assets are divided into three types namely that have economic lives of 3 years will only be calculated depreciation for 3 years ie in 2009, 2010 and 2011. while the type of assets that have economic life of 5 years will only be taken into account depreciation for 5 years ie in the year 2009 to 2011 plus 2012 and 2013. then the type of assets the latter because it has a 10-year economic life of the asset depreciation calculated for the entire year throughout the expected duration of the investment period of 10 years (2009-2018).

3. **Statements of Cash Flows from Ward Grade 3rd**

In this study, the manufacture of the cash flow statement using real data from the income statement in the Ward Grade 3rd PKU Muhammadiyah Unit 2 Hospital of Yogyakarta, but the real data are used only for the 3 years 2009, 2010, and 2011. Based on interviews of workers in finance and accounting RS PKU Muhammadiyah Yogyakarta Unit 2, they stated that it

still has a lack of adequate human resources software and information systems and financial management in data processing of their financial transactions. The hospital has not made and is the process of preparing the income statement for the years 2012 and 2013. This is what makes the researcher was not able to get an income statement RS PKU Muhammadiyah Yogyakarta Unit 2 in 2012 and 2013.

In addition, to the income statement in 2014 to 2018 may not be obtained, because now is the time this study was conducted in 2014, the hospital where the business process is running or has not occurred. So to be able to get the cash flow statement of the year 2012 - 2018, was made an estimate or prediction of the cash flow statement.

In making estimates / predictions of the cash flow statement are assuming the increase / growth in revenues of 15% per year and assuming the increase / growth instalation costs by 70% from revenues this year, then assuming the increase / growth Non instalation costs by 0,41% from revenues this year.

The assumption is based on the calculation of the percentage ratio between revenue growth and cost in real terms in the Income Statement in 2011 were calculated by the data processing software is Microsoft Excel version 2003.

Having in mind the estimated revenues and expenses for the years 2012 - 2018 can then be calculated to find the Net Cash Flow for the next 10 years (2009-2018). Preparation of cash flow statements for the next 10 years based on the preliminary results of a feasibility study according to the Research and Development Manager and Operations Manager PKU Muhammadiyah Hospital has a payback period of 10 years.

In calculating net cash flow each year there is also another assumption that tax rate is assumed to be worth 20% of EBT (taxable income). Assuming 20% of this value is based on the percentage rate of tax under the Tax Act in force at that time in 2009.

Statements of cash flows for 10 years (2009-2018) can be seen in Table 7 and Table 8 below.

4. **Investment Analysis Using Payback Period (PP) Method**

Having in mind the cash flow statement can perform the analysis of investment by using Payback Period (PP). Payback Period (PP) has 2 approaches, Payback Period (PP) without discount and Payback Period (PP) with discount.

Then the interest rate assumption used as a discount (discount factor) is the value of the interest rate in effect at the time of the initial investment in 2009, which i was 7%.

The results of the investment analysis Payback Period (PP) without the discount during the investment period of 10 years can be seen in Table 9 below. While the results of the investment analysis Payback Period (PP) with a discount can be seen in Table 10 below.

5. **Investment Analysis Using *Net Present Value* (NPV) Method**

Investment analysis methods of Net Present Value (NPV) is the assumption that the interest rate is used as discount (discount factor) is the value of the interest rate in effect at the time of the initial investment in 2009, which i was 7%.

The results of the investment analysis method of Net Present Value (NPV) of investment over a period of 10 years can be seen in Table 11 below or yard reverse this.

Table 7   Statement of Cash Flows Inpatient Ward Grade 3rd in RS PKU Muhammadiyah Yogyakarta Unit 2
Year Period 2009-2013

	1st Year (2009)	2nd Year (2010)	3rd Year (2011)	4th Year (2012)	5th Year (2013)
Revenue in Ward 3 Class	1.550.496.026	2.873.585.800	4.301.750.546	4.947.013.128	5.689.065.097
Installation Costs (Anfragh, etc)	1.491.439.073	4.646.460.848	3.015.250.224	3.462.909.190	3.982.345.568
Non Installation Costs (Linen)	7.870.000	4.529.000	17.585.000	20.282.754	23.325.167
Gross Profit	51.186.953	-1.777.404.048	1.268.915.322	1.463.821.185	1.683.394.362
Depreciation Cost	387.044.333	387.044.333	387.044.333	348.093.000	348.093.000
EBT (Earning Before Tax)	-335.857.380	-2.164.448.381	881.870.989	1.115.728.185	1.335.301.362
Tax (assumtion 20%)	-67.171.476	-432.889.676	176.374.198	223.145.637	267.060.272
EAT (Earnings After Tax)	-268.685.904	-1.731.558.705	705.496.791	892.582.548	1.068.241.090
Depreciation Cost	387.044.333	387.044.333	387.044.333	348.093.000	348.093.000
Net Cash Inflow (Proceeds)	**118.358.429**	**-1.344.514.372**	**1.092.541.124**	**1.240.675.548**	**1.416.334.090**

Table 8   Statement of Cash Flows Inpatient Ward Grade 3rd in RS PKU Muhammadiyah Yogyakarta Unit 2
Year Period 2014 - 2018

	6th Year (2014)	7th Year (2015)	8th Year (2016)	9th Year (2017)	10th Year (2018)
Revenue in Ward 3 Class	6.542.424.862	7.523.788.591	8.652.356.880	9.950.210.411	11.442.741.973
Installation Costs (Anfragh, etc)	4.579.697.403	5.266.652.014	6.056.649.816	6.965.147.288	8.009.919.381
Non Installation Costs (Linen)	26.823.942	30.847.533	35.474.663	40.795.863	46.915.242
Gross Profit	1.935.903.517	2.226.289.044	2.560.232.401	2.944.267.261	3.385.907.350
Depreciation Cost	103.680.000	103.680.000	103.680.000	103.680.000	103.680.000
EBT (Earning Before Tax)	1.832.223.517	2.122.609.044	2.456.552.401	2.840.587.261	3.282.227.350
Tax (assumtion 20%)	366.444.703	424.521.809	491.310.480	568.117.452	656.445.470
EAT (Earnings After Tax)	1.465.778.813	1.698.087.235	1.965.241.921	2.272.469.809	2.625.781.880
Depreciation Cost	103.680.000	103.680.000	103.680.000	103.680.000	103.680.000
Net Cash Inflow (Proceeds)	**1.569.458.813**	**1.801.767.235**	**2.068.921.921**	**2.376.149.809**	**2.729.461.880**

Table 9 Investment Analysis Using Payback Period (PP) without Discount Method

Component	1st Year (2009)	2nd Year (2010)	3rd Year (2011)	4th Year (2012)	5th Year (2013)	6th Year (2014)	7th Year (2015)	8th Year (2016)	9th Year (2017)	10th Year (2018)
Net Cash Inflow (Proceeds)	118.358.429	-1.344.514.372	1.092.541.124	1.240.675.548	1.416.334.090	1.569.458.813	1.801.767.235	2.068.921.921	2.376.149.809	2.729.461.880
Initial Capital Investment	4.289.748.073									
Uncovered Investment	4.171.389.644	5.515.904.016	4.423.362.891	3.182.687.344	1.766.353.254	196.894.441	-1.604.872.795			
	1	1	1	1	1	1	1,3113			
Payback Period	**6 tahun**	**1,5 bulan**					≈ 1,5			

Table 10   Investment Analysis Using Payback Period (PP) with Discount Method

Component	1st Year (2009)	2nd Year (2010)	3rd Year (2011)	4th Year (2012)	5th Year (2013)	6th Year (2014)	7th Year (2015)	8th Year (2016)	9th Year (2017)	10th Year (2018)
Net Cash Inflow (Proceeds)	118.358.429	-1.344.514.372	1.092.541.124	1.240.675.548	1.416.334.090	1.569.458.813	1.801.767.235	2.068.921.921	2.376.149.809	2.729.461.880
Discount Factor (assumtion, i = 7%)	0,934579439	0,873438728	0,816297877	0,762895212	0,712986179	0,666342224	0,622749742	0,582009105	0,543933743	0,508349292
Discounted Cash Inflow	110.615.354	-1.174.350.923	891.839.000	946.505.435	1.009.826.632	1.045.796.676	1.122.050.081	1.204.131.394	1.292.468.058	1.387.520.015
Initial Capital Investment	4.289.748.073									
Uncovered Investment	4.179.132.719	5.353.483.642	4.461.644.642	3.515.139.207	2.505.312.575	1.459.515.899	337.465.819	-866.665.576		
	1	1	1	1	1	1	1	3,4		
Payback Period	**7 tahun**	**3,5 bulan**						≈ 3,5		

Table 11 Investment Analysis Using *Net Present Value* (NPV) Method

Component	1st Year (2009)	2nd Year (2010)	3rd Year (2011)	4th Year (2012)	5th Year (2013)	6th Year (2014)	7th Year (2015)	8th Year (2016)	9th Year (2017)	10th Year (2018)
Proceeds (Net Cash Inflows)	118.358.429	-1.344.514.372	1.092.541.124	1.240.675.548	1.416.334.090	1.569.458.813	1.801.767.235	2.068.921.921	2.376.149.809	2.729.461.880
Discount Factor Multiplier (7%)	0,93	0,87	0,82	0,76	0,71	0,67	0,62	0,58	0,54	0,51
Discounted Proceeds	110.615.354	-1.174.350.923	891.839.000	946.505.435	1.009.826.632	1.045.796.676	1.122.050.081	1.204.131.394	1.292.468.058	1.387.520.015
Total Discounted Proceeds	7.836.401.722									
Initial Capital Investment	4.289.748.073									
Net Present Value (NPV)	**3.546.653.649**									

6. Investment Analysis Using *Internal Rate of Retur*n (IRR) Method

        In the method of the Internal Rate of Return (IRR) is used the assumption that the interest rate (i) is used as a discount (discount factor) is the prevailing interest rates in 2009 at the beginning of the investment, which is 7%. So the value is used as a benchmark BIRT any investment is 7%.

        According to the classical theory used in finding the IRR approach "Trial & Error". However, in this study support the calculation of analysis used data processing software Microsoft Excel version 2003. Results investment analysis methods Internal Rate of Return (IRR) for an investment period of 10 years can be seen in Table 12 below ini.[10]

Tabel 12 **Investment Analysis Using *Internal Rate of Retur*n (IRR Method**

Investment Analysis Component		Discounted Proceeds
Initial Capital Investment		- 4.289.748.073
1st Year	(2009)	110.615.354
2nd Year	(2010)	-1.174.350.923
3rd Year	(2011)	891.839.000
4th Year	(2012)	946.505.435
5th Year	(2013)	1.009.826.632
6th Year	(2014)	1.045.796.676
7th Year	(2015)	1.122.050.081
8th Year	(2016)	1.204.131.394
9th Year	(2017)	1.292.468.058
10th Year	(2018)	1.387.520.015
Note : IRR is calculated using Microsoft Excel 2003 software with formula / formulas as follows : = IRR (B2 : B12 ; 7%)		**IRR = 9 %**

DISCUSSION

Investment ward grade 3rd development projects in RS PKU Muhammadiyah Yogyakarta Unit 2 has a payback (payback period) is 6 years and 1,5 months (without the discount) or 7 years 3,5 months (with discount) more quickly than expected in the initial feasibility study of 10 years. This investment means "feasible" to be continued.

These investments have a refund value (Net Present Value) is positive amounting to Rp 3.546.653.649, -. Because NPV > 0 (positive), then it means "feasible" to be continued.

This investment has a rate of return (Internal Rate of Return) is 9 % greater than bank interest (MARR) 7%. This investment means "feasible" to be continued.

Differences result of a calculation method estimates the payback period between the results of this study compared with the results of the feasibility study in early 2009, as well as the magnitude of the positive value of NPV and IRR of the value of the degree of possibility because the assumptions used in the initial feasibility study is very "minimal" assumption that 1 patient hospitalization visits / day while fact according to statistics in 2012, inpatient grade 3 users an average of 21 patients / day with BOR 71.5%.

Another rational explanation for the increase in inpatient visits the class 3 is because there is a change of government regulation on increasing the number of patient referrals BPJS into a market segment that is never exhausted and always increasing. In addition there are other factors, namely, the knowledge society is now already know the where abouts information PKU Muhammadiyah Hospital Unit 2 is nicer facilities.

CONCLUSION

Overall investment in the development of Ward Grade 3rd PKU Muhammadiyah Hospital of Yogyakarta Unit 2 is "feasible" to be continued.

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APPENDIX 1

Depreciation Entire Initial Investment Asset Development Inpatient Ward 3 classes in PKU
Muhammadiyah Hospital of Yogyakarta Unit 2 the period 2009-2018

No	The Name of Aset	Total Price (Rp)	Ekonomic Life Period (year)	Annual Depreciation (Rp)	Depreciation in 2009, 2010 & 2011 year (Rp)	Depreciation in 2012 & 2013 year (Rp)	Depreciation in 2014, 2015, 2016, 2017 & 2018 year (Rp)
1	Tanah	414.720.000	-	-	-	-	-
2	Bangunan	1.036.800.000	10	103.680.000 210.000.000	103.680.000	103.680.000	103.680.000
3	Bed pasien RS (Merek : Paramount)	1.050.000.000	5		210.000.000	210.000.000	0
4	Lemari kabinet pasien (Merek : MAK)	33.000.000	5	6.600.000	6.600.000	6.600.000	0
5	Kursi penunggu pasien (Merek : Informa)	21.000.000	3	7.000.000	7.000.000	0	0
6	EKG (Merek : Fukuda-Cardi Sunny)	50.000.000	5	10.000.000	10.000.000	10.000.000	0
7	Nebulizer	1.600.000	5	320.000	320.000	320.000	0
8	Tabung Oksigen	6.825.000	5	1.365.000	1.365.000	1.365.000	0
9	Lampu pembaca foto rontgen	4.800.000	3	1.600.000	1.600.000	0	0
10	Tiang penggantung infus	11.700.000	3	3.900.000	3.900.000	0	0
11	Lemari loker perawat (Merk : Olimpic)	12.150.000	3	4.050.000	4.050.000	0	0

No	Nama	Harga	Umur				
12	Lemari obat & alat medis (Merek : MAK)	5.900.000	3	1.966.667	1.966.667	0	0
13	Trolley peralatan medis (Merek : MAK)	7.900.000	3	2.633.333	2.633.333	0	0
14	Meja *nurse station*	5.400.000	5	1.080.000	1.080.000	1.080.000	0
15	Meja komputer	400.000	3	133.333	133.333	0	0
16	Meja kerja dari kayu (Merek : Geniotech)	1.500.000	5	300.000	300.000	300.000	0
17	Kursi putar (Merek : Savello)	6.000.000	3	2.000.000	2.000.000	0	0
18	Kursi lipat dari besi	600.000	3	200.000	200.000	0	0
19	Kursi putar tanpa sandaran (Merk : Savello)	1.300.000	3	433.333	433.333	0	0
20	Lemari Es (Merek : Panasonic)	4.500.000	5	900.000	900.000	900.000	0
21	Dispenser (Merek : Miyako)	400.000	3	133.333	133.333	0	0
22	Komputer & monitor	7.000.000	5	1.400.000	1.400.000	1.400.000	0
23	AC (Merek : Daikin type converter)	30.800.000	5	6.160.000	6.160.000	6.160.000	0
24	Wastafel (Merek : Toto)	9.384.000	5	1.876.800	1.876.800	1.876.800	0

No							
25	*Water Heater* (Merek : Ariston)	18.400.000	3	6.133.333	6.133.333	0	0
26	*Exhaust* (Merek : Panasonic)	20.400.000	3	6.800.000	6.800.000	0	0
27	*Showe*r + kran air (Merek : Toto)	5.904.000	3	1.968.000	1.968.000	0	0
28	Kloset duduk (Merek : Toto)	22.056.000	5	4.411.200	4.411.200	4.411.200	0
	JUMLAH	**2.790.439.000**	-	-	**387.044.333**	**348.093.000**	**103.680.000**

APPENDIX 2

Site Plan of The 2nd Floor Building PKU Muhammadiyah Hospital Unit 2 of Yogyakarta

ZONA PUBLIK : IGD, Rawat Jalan, Apotek, Administrasi, R.Jenazah

ZONA SEMI PUBLIK : Laboratorium, Radiolog, Haemodialisis

ZONA PRIVAT : Rawat Inap, R.Bersalin, R.Operasi, HCU

Zona Pelayanan : R.Cuci, Dapur, Mushola, IPSRS, R.Pompa, Incenerator

PERAWAT

KANTOR PENGELOLA

SIRKULASI

Sistem zonasi RSU PKU Muhammadiyah Yogyakarta Lt. 2