

RISK ANALYSIS OF CAPITAL BUDGETING WITH MONTE CARLO SIMULATION OF WIFI INSTALLATION SERVICES BUSINESS DEVELOPMENT

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Abstract

Today's telecommunication operators are changing their line of business from what used to be focused on voice telecommunication services or voice call and SMS services to change to data/internet based services. However, internet services from telecommunication operators are not evenly distributed throughout Indonesia, there are still many remote areas or rural areas that have not been able to enjoy internet services from these telecommunication operators due to infrastructure problems that have not been evenly distributed. One of the trends in the development of information technology that provides an even distribution of internet facilities with a wider scope is RT/RW Net. Therefore, many companies are engaged in internet services, especially CV. Aisyah Cahaya Quanta who makes long-term investments in business development. The problem that is a factor in failure is that investment planning decisions only use the instincts and personal opinions of business owners. Although the funds that will be invested by the company into business development have a relatively small amount, the investment must still be calculated carefully and precisely, and must be able to provide the maximum return. The type of research used in this research is quantitative with a descriptive approach. Research done by using capital budgeting analysis and risk analysis to the internet network expansion project that will be carried out by CV. Aisyah Cahaya Quanta.

Based on the results of the calculation of the financial feasibility evaluation and risk analysis using the Monte Carlo simulation, the internet network expansion project is considered feasible. So

that the internet network expansion project that will be carried out by CV. Aisyah Cahaya Quanta is recommended to continue.

Keyword: Capital Budgeting, Financial Feasibility Evaluation, Risk Analysis.

1. INTRODUCTION

The internet is a network system that connects various computers from various parts of the world to connect and exchange data and exchange information. Along with the development of technology in today's era, causing the emergence of various kinds of businesses in the field of information technology, one of which is a business engaged in the field of internet service providers.

In today's era, the internet network has become a basic need for everyone as evidenced by the many uses of the internet network, especially WiFi which is increasingly widespread in its daily use, both for communication between offices and for personal communication.

CV. Aisyah Cahaya Quanta, an internet service provider company, wants to provide internet connection facilities that can reach rural areas and at a relatively low cost. To expand the internet network connection, it is necessary to carry out capital budgeting and risk analysis.

Appropriate and effective capital budgeting will help determine when is the right time to expand the internet network connection. While risk analysis is the ability of decision makers (project planners) in estimating the possibilities (probability) associated with various variations of results that will be received during the investment so that a probability distribution can be arranged. There are 2 types of risk, namely: predictable/predictable risk, and unpredictable/predictable risk (uncertainty). In carrying out an internet network

expansion project there are risks that are difficult to predict (uncertainty), then the risks in an internet network expansion project must be analyzed more deeply, so that in its implementation it does not harm the company materially and non-materially.

The formulation of the problem in this research are:

How to do the capital budgeting of the internet network connection expansion project? and how to evaluate the feasibility of an investment plan with 4 methods, namely NPV (Net Present Value), IRR (Internal Rate of Return), PI (Profitability Index), and DPP (Discounted Payback Period)

How to carry out a risk analysis of the internet connection expansion project carried out by CV. Aisya Cahaya Quanta by using the Monte Carlo simulation method?

How to use the results obtained from the analysis of capital budgeting and risk analysis as a basis for decision making in the project to expand the internet network connection carried out by CV. Aisha Cahaya Quanta?

2. LITERATURE REVIEW AND PREVIOUS STUDIES

2.1. Capital Budgeting

Eugene & Phillip (2007:397) stated that: "Capital budgeting is the decision-making process used by managers to identify projects that will add value to the firm, and it is the most important task faced by corporate finance managers".

Meanwhile, according to Van Horne and Wachowicz (2007:17): "Capital budgeting is the process of identifying, analyzing, and selecting various projects whose returns (cash flows) are estimated to be received in more than a year".

Investments made using capital budgeting generally use large amounts of capital for business owners, and have an investment life of more than 1 year. So that decisions in capital budgeting will have an impact on future cash flows and provide risks associated with these cash flows. So capital budgeting can determine the success or failure of a business. Generally, companies categorize and analyze projects using capital budgeting into several different categories, namely:

- a. Replacement (Replacement)
- b. Expansion
- c. Research and Development (Research and development)

d. Long-Term Contract (Long-Term Contract)

The processes in project analysis in capital budgeting are:

1. Conduct cost of capital analysis, which is to determine the required rate of return.
2. Estimate the cash flow of the project, from the initial investment issued to the cash inflows and outflows in the future during the useful life of the project.
3. Evaluate the feasibility of the investment plan using the following methods: Net Present Value, Internal Rate of Return, Profitability Index and others.

2.2. Risk Analysis

Risk analysis is carried out for all financial decisions, especially those related to capital budgeting. The objectives of risk analysis are:

1. To measure the risk of a potential capital budgeting project.
2. To integrate information about these risks into capital budgeting decisions.

In making a risk analysis that has several uncertainty factors that can affect the estimation of cash flows, the Monte Carlo method can be used. The Monte Carlo method is generally used for situations where the input data has an uncertainty that is processed to become a probability distribution. From the probability distribution, the standard deviation can be determined, what is the output value, and the possible output from the best, the worst, and the most frequent. The basis of the Monte Carlo simulation is a probability element experiment using a random sample.

According to Sutanto (2009) the Monte Carlo method is divided into 5 stages, namely:

1. Creating probability distributions for important variables.
2. Construct the cumulative probability distribution for each variable from the first stage.
3. Determine the random number interval for each possibility based on the cumulative probability.
4. Generate random numbers.
5. Make a simulation of a series of experiments.

3. RESEARCH METHODS

This research was conducted at CV. Aisya Cahaya Quanta which is one of the companies engaged in the field of internet service providers in the city of Kapuas. CV. Aisya Cahaya Quanta's address is Perum. Kampoeng Modern Block D No. 8 Kapuas Regency with the owner's name Rony Anto. CV. Aisya Cahaya Quanta has a business plan that is to distribute the internet network evenly in remote areas. With an investment value of Rp. 47,995,625.00 for 5 years.

The type of research used in this research is quantitative with a descriptive approach accompanied by a literature study to support the analysis with secondary data and theoretical basis. This research is in the form of a case study, namely research related to the background and current conditions of the subject under study and the subject's investment plans in the future. The framework in the research can be described with the following stages:

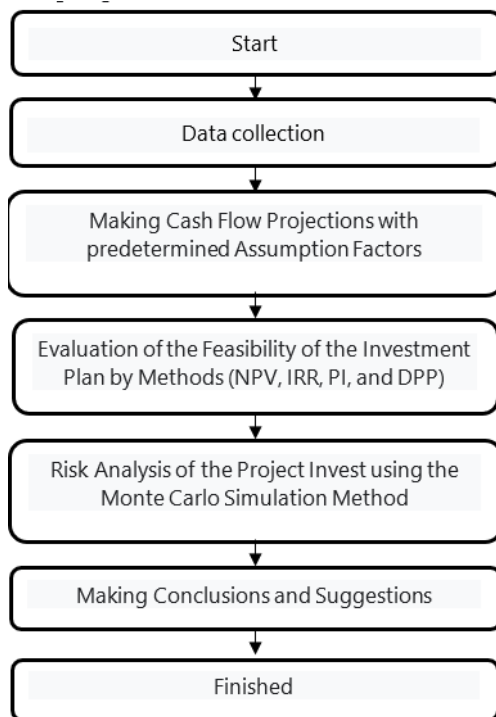


Figure 3.1
Research Framework Flowchart

The stages of the research are described as follows:

1. Data Collection Techniques
The data used are primary data and secondary data. Primary data were obtained through

interviews and field observations based on the research schedule. While secondary data is obtained through data that has been researched and collected by parties related to research problems, such as: Details of the BTS construction plan costs in the form of: labor costs, equipment costs, CV sales reports. Aisya Cahaya Quanta, managerial information about the number of customers, and so on.

2. Data Processing Techniques
The data processing technique will use Microsoft Excel, the data will be analyzed by quantitative methods according to the steps in the research framework so that the author seems to be carrying out the duties of a financial manager in carrying out capital budgeting and risk analysis with the Monte Carlo simulation method on the internet network equity project. conducted by CV Aisya Cahaya Quanta.
3. Making Cash Flow Projections
Based on the data that has been collected, the operational cash flow projection is then carried out, starting from the initial investment fund expenditure to the cash flow that will be obtained and issued. There are 2 types of cash flow projections:
 - a. Cash flow projections for the ground state with fixed assumption factors.
 - b. Projected cash flows with different conditions with random assumption factors which will then be used for risk analysis of the project.
4. Evaluation of the Feasibility of the Investment Plan
Project appraisal will be carried out using 4 methods, namely: Net Present Value (NPV), Internal Rate Return (IRR), Profitability Index (PI), Discounted Payback Period (DPP).
5. Risk Analysis with Monte Carlo Simulation Method

The risk analysis of the project is carried out using the Monte Carlo simulation method, using cash flow projections with random assumption factors. Risk analysis will be carried out by randomizing the assumption factors that have been set for 50 iterations to determine the possible losses and profits that the project can generate.

6. Making Conclusions and Suggestions
From the overall results of the analysis, conclusions and suggestions will be made to be used as a reference in making project implementation decisions. With 2 forms of conclusions, namely, the project is feasible to run, and the project is not feasible to run, along with reasons and suggestions compiled descriptively.

4. RESULTS AND DISCUSSION

4.1. Data Analysis Results

This study aims to perform simulation calculations to assess the investment that will be made by the owner of the CV. Aisya Cahaya Quanta is to distribute the internet network in different locations and is still located in Kapuas Regency, so that the data used are the number of customers, bandwidth sales, equipment purchase costs, and equipment maintenance costs. The following is the historical data used for calculations in this study, namely:

- a. Number of Customers

The following is data on the number of internet network subscribers who subscribe to CV. Aisya Cahaya Quanta in 2017 – 2020:

Month	Year			
	2017	2018	2019	2020
March		10	21	31
February		15	25	34
March		15	26	34
April	4	15	27	34
May	4	16	27	36
June	4	17	27	39
July	4	17	27	39
August	6	17	27	39
September	7	17	28	39
October	7	17	29	41
November	7	17	30	41
December	7	19	31	42

Table 4.1 Number of Customers

In the table above, it can be seen that not every month there are new customers and the company hopes that

the number of customers continues to grow from month to month.

- b. Revenue From Sales of Bandwidth

Month	Year			
	2017	2018	2019	2020
March		2,000,000	4,900,000	7,300,000
February		3,500,000	6,100,000	7,900,000
March		3,500,000	6,300,000	7,900,000
April	800,000	3,500,000	6,500,000	7,900,000
May	800,000	3,750,000	6,500,000	8,300,000
June	800,000	4,000,000	6,500,000	9,050,000
July	800,000	4,000,000	6,500,000	9,050,000
August	1,200,000	4,000,000	6,500,000	9,050,000
September	1,400,000	4,000,000	6,700,000	9,050,000
October	1,400,000	4,000,000	6,900,000	9,450,000
November	1,400,000	4,000,000	7,100,000	9,450,000
December	1,400,000	4,400,000	7,300,000	9,750,000

Table 4.2 Revenue (Cash In Flow) From Sales of Bandwidth

In table 4.2 shows the income obtained by CV. Aisya Cahaya Quanta from bandwidth sales in 2017 – 2020.

4.2. Internet Network Equitable Investment Plan

4.2.1. Investment Value Plan

An investment plan that will be carried out by the owner of the CV. Aisya Cahaya Quanta is to distribute the internet network evenly by building BTS (Base Transceiver Station) infrastructure. The purpose of the owner of the CV. Aisya Cahaya Quanta distributes the internet network evenly to reach people's locations that have not been reached by the internet network. With the BTS infrastructure, it is hoped that it will attract more customers to use the internet network. The cost to build BTS infrastructure is currently ± 45 million rupiah. Because the cost of making BTS infrastructure is not too expensive and the funds needed to build BTS infrastructure are also available, the owner of CV. Aisya Cahaya Quanta plans to invest in the next 2 years, namely 2022.

4.2.2. Financing Plan

The entire investment is planned to be financed with own capital. According to the owner of CV. Aisya Cahaya Quanta, the use of own capital because it does not

require large costs from purchasing tools to the installation process.

Budget Plan (RAB) is planning a building in the form and benefits of its use, along with the required costs and implementation arrangements in the administrative field as well as the implementation of work in the technical field. The cost budget plan is an estimate of the calculation of the costs required for each job in a construction project so that the total cost required for the completion stage of the construction work project is obtained. The cost budget plan is calculated based on plan drawings and specifications that are easy to determine as well as wages for labor and work tools. In the construction process, estimation includes many things that cover various purposes and interests for various managements in the organization.

In making the RAB, the planner will make an estimate of the price of goods and wages. Estimated cost budget is very necessary in calculating the cost budget plan, which can be called the assignor using it as a tool to determine the cost of capital investment that must be invested.

4.2.3. Costs of the Investment Plan

To expand the internet network, other costs are needed such as maintenance costs, overhead costs, and labor costs.

a. Maintenance cost

The maintenance costs in this study consist of the BTS infrastructure maintenance costs. BTS infrastructure needs to be maintained or maintained regularly every month, this aims to maintain performance or maintain infrastructure condition so that it remains stable in supplying internet signals. The following is the total maintenance cost for BTS infrastructure:

Year	BTS Infrastructure (Rp)
2025	1,105,625
2026	1,160,906
2027	1,218,952
2028	1,279,899
2029	1,343,894
2030	1,411,089
2031	1,481,643
2032	1,555,725
2033	1,633,512
2034	1,715,187

Table 4.3 Maintenance Costs

Table 4.3 is the maintenance cost data for BTS infrastructure. This maintenance cost is classified as a fixed cost, but the nominal value of this maintenance fee will not be the same or will not be fixed for the following years. Owner CV. Aisya Cahaya Quanta estimates or assumes that every year maintenance costs will increase by 5%.

b. Labor costs

Workers who work in CV. Aisya Cahaya Quanta consists of 4 people consisting of 1 person serving as administrator and 3 people as manual labor in charge of installing internet network equipment. Payroll on CV. Aisya Cahaya Quanta is carried out every month and each work section has a different salary distribution. The following is a table of total labor costs in CV. Aisya Cahaya Quanta:

Year	Total (Rp)
2025	9,000,000
2026	9,225,000
2027	9,455,625
2028	9,692,016
2029	9,934,316
2030	10,182,674
2031	10,437,241
2032	10,698,172
2033	10,965,626
2034	11,239,767

Table 4.4 Labor Cost

Table 4.4 is a table of salary cost data for workers who work at CV. Aisya Cahaya Quanta. The increase in the number of customers will affect the amount of labor salaries, so that the owner of CV. Aisya Cahaya Quanta will increase the salary of workers by 2.5% per year.

c. Company Overhead Cost

The company's overhead costs on CV. Aisya Cahaya Quanta consists of electricity costs and indihome subscription fees.

Year	Company Overhead Cost (Rp)
2025	13,080,000
2026	13,480,000
2027	13,480,000
2028	13,880,000
2029	13,880,000
2030	14,280,000
2031	14,280,000
2032	14,680,000

2033	14,680,000
2034	15,080,000

Table 4.5 Company Overhead Costs

Table 4.5 is a table of total CV overhead costs. Aisya Cahaya Quanta for the investment plan for internet network distribution in 2022 to 2031. The overhead costs consist of electricity costs and indihome subscription fees. Electricity costs and indihome subscription fees have increased following the increase in the number of subscribers.

D. Shrinkage

The calculation of depreciation in this study uses the straight line method with no residual value. Following are the depreciation on BTS infrastructure:

Year	Shrinkage (Rp)
2025	2,983,750
2026	3,013,588
2027	3,043,723
2028	3,074,161
2029	3,104,902
2030	3,135,951
2031	3,167,311
2032	3,198,984
2033	3,230,974
2034	3,263,283

Table 4.6 Shrinkage

Table 4.6 is a table of total cost data for depreciation. Depreciation costs in table 4.6 consist of depreciation of electronics (sectoral mANTBox 19s, router RB3011UiAS-RM, computer proxy) and non-electronic depreciation (tower triangle, lightning rods and grounding, STP Cat 5 balden cable, RJ45 connector, and 8 port switch hub In table 4.6, it can be seen that every year depreciation costs increase, this is because the owner of CV. Aisya Cahaya Quanta assumes that the purchase price of equipment each year increases by 1% so that depreciation costs will also increase.

4.4. Analysis of Research Results

The stages in analyzing the Monte Carlo simulation in this study include the following:

4.4.1. Data Collection

The initial step taken before calculating the Monte Carlo simulation is to collect or collect data, both cost data and sales data. Data costs - costs and sales are presented in tables 4.1 to 4.6.

4.1.2. Monte Carlo Simulation Calculations

The purpose of the Monte Carlo simulation is to form various conditions or conditions for forecasting in the future. The data that will be simulated using Monte Carlo analysis are the number of subscribers, the price of the subscription package, and the price of the client installation. These data will be used to project or predict the future using random numbers or random numbers, where random numbers or random numbers are obtained with the help of Microsoft Excel. Following are the steps in calculating the Monte Carlo simulation:

1. Determine the Number of Classes

The historical data used for simulation calculations is from 2017 to 2020, so the total data used is 45 months, because in 2017 the data available is from April. Calculation of the number of classes as follows:

$$\begin{aligned}
 \text{Number of Classes} &= 1 + 3,3 \log n \\
 &= 1 + 3,3 \log 45 \\
 &= 1 + 5,45 \\
 &= 6,45 \text{ dibulatkan menjadi } 7
 \end{aligned}$$

So, the number of classes that will be used in the Monte Carlo simulation is 7 classes.

2. Determine the Class Interval

After counting the number of classes, the next step is to calculate the class interval. Class interval calculations are carried out every month for each data to be simulated. The following is the calculation of the class interval for the number of subscribers in April:

$$\begin{aligned}
 \text{Class Interval} &= \frac{\text{the highest score} - \text{lowest value}}{\text{number of classes}} \\
 &= \frac{34 - 4}{7} \\
 &= 4.286 = 4
 \end{aligned}$$

So the class interval of the number of customers in April is 4 people. The calculation for the following months is the same as the calculation in April.

3. Determine Random Numbers

After calculating the number of classes and class intervals from each data to be simulated, the next step is to determine random numbers. Determination of random numbers ranging from 1 to 100.

The following is a Monte Carlo simulation calculation on the number of sales of internet subscription packages. Data on the number of internet subscribers is divided into 7 classes with an interval of 4 people. Classes of the number of internet subscribers are as follows

	1	2	3	4	5	6	7
Average	6	11	16	20	23	27	32
Lowest (person)	4	9	14	19	22	25	30
Highest (person)	8	13	18	21	24	29	34
Min <i>random</i> number	0	20	36	51	64	73	86
Max <i>random</i> number	19	35	50	63	72	85	100

Table 4.7 Class Number of Customers in April

Numbers 1 to 7 in the table above indicate the number of classes. Based on the table above, random numbers can be used as a basis for projecting or forecasting the

number of internet subscribers from CV. Aisha Cahaya Quanta in the future. For example, the random number listed is 10, the number 10 is between 0 to 19, then the number of customers in the future is projected or predicted as many as 6 people. For the following months, from May to March, the simulation calculation is the same.

4.4.3 Calculating Cash Flow Investment Plan Equitable Internet Network

The cash flow investment plan for internet network equity consists of several components, namely initial investment, operating cash flow, and discount factor. The discount factor used in this study is ROE because the overall investment plan financing comes from own capital. The internet network equity investment financing plan is made as described in chapter 4.3.2. The following is the calculation of the financing plan for the internet network equity investment plan:

No.	Jenis	Σ	Satuan	Harga (Rp)	Biaya (Rp)
1	Biaya Tower				
	Tower Triangle	40	Meter	550,000	22,000,000
2	Penangkal Petir dan Grounding	1	Set	5,000,000	5,000,000
	Biaya Perangkat				
	Sektoral mANTBox 19s	3	Buah	3,000,000	9,000,000
	Router RB3011UiAS-RM	1	Buah	2,950,000	2,950,000
	Kabel STP Cat 5 Belden	1	Roll	1,450,000	1,450,000
	Konektor RJ45	1	Box	75,000	75,000
	Hub Swicth 8 port	1	Buah	250,000	250,000
3	Komputer proxy	1	Buah	3,500,000	3,500,000
	Biaya Instalasi				
	PM (Project Manager)	1	orang	2,000,000	2,000,000
	Teknisi	3	orang	200,000	600,000
	Sub Total				46,825,000
	Biaya Tak Terduga (2,5% dari sub total)				1,170,625
	Total				47,995,625

Table 4.8 Investment Capital Structure

Based on the table above, the value of BTS infrastructure development for internet network distribution is Rp. 47,995,625.00 and all of them will use their own capital.

4.4.4. Cash Flow Projections

1. Break Event Point (BEP)

Break event point (BEP) is the break-even point where the value of revenue is equal to the total costs incurred. The BEP analysis is a way to find out the minimum volume of income so that a business does not experience a loss but also has not made a profit or profit (profit equals zero). Based on the data above, the Break Event Point (BEP) of internet network creation can be calculated as follows:

$$\begin{aligned} BEP &= \frac{\text{Biaya Tetap}}{\text{Laba Bersih}} \times 100\% \\ &= \frac{47.995.625}{52.913.430} \times 100\% \\ &= 90,71\% \end{aligned}$$

The results of the BEP calculation show that from the investment cost of Rp. 47,995,625.00 BEP obtained by 90.71% of the total sales to internet customers, namely the turnover of Rp. 52,913,430.00.

2. Payback Period (PP)

Payback period (PP) is a method used to measure the speed of return on investment expressed in years. The calculation of the payback period (PP) in this case is done to find out how long the business or project being worked on can return the investment. The results of the calculation of the payback period (PP) are as follows:

$$\begin{aligned} \text{Payback Period} &= \left[t + \frac{b - c}{d - c} \right] \times 12 \text{ month} \\ &= \left[1 \text{ year} + \frac{47.995.625 - (-3.904.656)}{12.383.084 - (-3.904.656)} \right] \times 12 \text{ month} \\ &= 50,24 \text{ month} \\ &= 4 \text{ year } 2 \text{ month } 7 \text{ day} \end{aligned}$$

From these calculations indicate that the payback period (PP) is achieved in 4 years 2 months 7 days. This shows that in that period of time the investment value of internet network development business is Rp. 47,995,625.00 has returned. According to Pujawan (2004), a project is said to be feasible if the payback period (PP) is shorter than the planned project life.

4.4.5. Business Feasibility Evaluation

1. Net Present Value (NPV)

Net Present Value (NPV) is a calculation to assess the feasibility of a project based on investment criteria. The

calculation of NPV is done by calculating the total difference between the current investment value and the value of net cash receipts in the future using the applicable discount factor. In evaluating using the Net Present Value (NPV), the interest rate used follows the Bank Indonesia interest rate in July 2018 which is 9%. The results of the NPV calculation on the investment plan for equal distribution of the internet network are 50 simulations. Based on the NPV calculation, the internet network distribution project can be said to be feasible.

2. Internal Rate of Return (IRR)

Internal Rate of Return (IRR) is used to calculate the interest rate that equates the present value of the investment with the present value of net cash receipts in the future. IRR calculation is done by trial and error. In making the IRR, two calculations are made with two different interest rates. The first interest rate (i_1) = 6% and the second interest rate (i_2) = 16%, then the IRR calculation can be obtained as follows:

$$\begin{aligned} IRR &= i_1 + (i_2 - i_1) \times \left[\frac{NPV_1}{NPV_1 - NPV_2} \times 100\% \right] \\ &= 9\% + (19\% - 9\%) \times \left[\frac{212.988.619}{212.988.619 - 131.219.222} \times 100\% \right] \\ &= 9\% + 10\% \times \left[\frac{212.988.619}{81.769.396} \times 100\% \right] \\ &= 35,05\% \end{aligned}$$

3. Profitability Index (PI)

Calculation of business efficiency with the calculation of profitability index (PI) which is a comparison between business income and total costs incurred which shows a business success to achieve profit or profit. The calculation of profitability index (PI) is as follows:

$$\begin{aligned} PI &= \frac{\text{Present Value of Cash In Flow}}{\text{Initial Investment}} \\ &= \frac{260.984.244}{47.995.625} \\ &= 5,44 \end{aligned}$$

The total revenue obtained from internet sales (WiFi) to customers is Rp. 260.984244.00 with a total cost of Rp. 47.995.625.00 so that the PI value is 5.44. It can be said that the total revenue is 4.44 times greater than the total cost incurred.

4. Discounted Payback Period (DPP)

The discounted payback period (DPP) is the length of the period in years expected to recover the investment costs that have been incurred for a project

from the discounted net cash flows. In addition, the discounted payback period (DPP) is a revision of the payback period (PP) which does not consider the cost of capital. Either the payback period (PP) or the discounted payback period (DPP) is often used as a weld for project riskiness. The DPP calculation can be seen as follows:

$$\begin{aligned} DPP &= 2 + \frac{37.868.813}{38.282.296} \\ &= 2 + 0,989 \\ &= 2,989 = 3 \text{ year} \end{aligned}$$

4.5. Research Limitations

The limitation of this research is the use of random data. The random data used has not been able to describe conditions that may occur in the future optimally.

5.CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

Based on the results of the project assessment calculations using feasibility evaluation and NPV calculations after using risk analysis with monte carlo simulations, it can be concluded that the decision recommendations on the internet network equity project are:

- a. Net Present Value (NPV)
The Net Present Value obtained in the internet network distribution project with a discount factor of 9% is Rp. 212,988,619.00 or NPV>0, then the internet network distribution project is feasible to run.
- b. Internal Rate Return (IRR)
The Internal Rate Return (IRR) on the internet network distribution project is 35.05% or a positive IRR value, then the internet network equity project is feasible to continue.
- c. Profitability Index (PI)
Profitability Index (PI) on the internet network distribution project is 5.44 or PI > 1, then the internet network equity project is feasible to run.
- d. Discounted Payback Period (DPP)
The Discounted Payback Period (DPP) value for the internet network distribution project is 2 years 11 months or DPP <5 years, so the

internet network distribution project is feasible to run.

- e. Risk analysis using monte carlo simulation
The results of calculations using the Monte Carlo simulation produce a positive Net Present Value or NPV > 0, then the project is feasible to run, because it is not risky for CV. Aisha Cahaya Quanta.

5.2 Suggestions

Based on the research results that have been described, there are some good suggestions for CV owners. Aisya Cahaya Quanta and for future researchers. Some of the suggestions put forward in this study include the following:

For owners CV. Aisya Cahaya Quanta According to the results of this study, the owner of the company can implement the project with low risk. However, this result is not absolute must be used by the company.

For further researchers: The calculation of market potential still uses assumptions, for those who are interested in continuing this research, it is expected that the calculation has used the survey method of prospective customers using questionnaires or interviews to find out for sure the number of potential customers.

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