Jurnal
Talenta Sipil

Vol 8, No 2 (2025): Agustus, 606-612
Publisher by Program Studi Teknik Sipil
Fakultas Teknik Universitas Batanghari
ISSN 2615-1634 (Online), DOI 10.33087/talentasipil.v8i2.916

Financial Feasibility Study of 4-Storey Building Development (Case Study: Center for Language and Culture Building)

Imanda Prasetya Utami[1] , I Nyoman Dita Pahang Putra[1]*
Program Studi Teknik Sipil, Fakultas Teknik, UPN Veteran Jawa Timur, Surabaya-60294, Indonesia

ARTICLE INFO

Keywords:
Net Present Value; Benefit Cost Ratio; Internal Rate of Return; Return on Investment; Payback Period.

Correspondence email:
putra_indp.ts@upnjatim.ac.id

Submitted: 23-04-2025
Revised: 02-06-2025
Accepted: 23-07-2025
Published: 01-08-2025

ABSTRACT

Indonesia's rapid population growth, accompanied by significant developments in the field of education, has driven the need for educational facilities. One of the initiatives that can be carried out is the construction of the Center for Language and Culture Building. However, before the construction of the building is carried out, a financial feasibility study should first be carried out. Thus, research was carried out aimed at ensuring that development projects are financially feasible and avoid losses in the future. The method used is the Discounted Cash Flow (DCF) method, using NPV, IRR, BCR, ROI, and Payback Period as the eligibility assessment criteria. The data needed includes building development planning data and building operational data. The results of the analysis are a positive NPV of ID15,312,986,696.52, IRR of 28.28%, BCR of 2.47, ROI of 34.73%, and a payback period of 3 years and 8 months, which shows that the project is feasible to be implemented.

INTRODUCTION

Population growth in Indonesia has been very rapid in recent years(Wardhana et al., 2020). This is also accompanied by the rapid development of education in Indonesia. The development of education plays an important role in the sustainability of society in processing and communicating well with the outside world (Abuk et al., 2020). However, the limited understanding of international languages can be a barrier to the continuity of communication between the Indonesian people and the outside world today(Risqi, 2019). So, there needs to be adequate facilities to support the sustainability of foreign language learning for the Indonesian population. In general, educational facilities can be defined as any equipment that teachers and students directly use in the teaching and learning process.

The Center for Language and Culture is one of the facilities that can be built to support the continuity of learning related to foreign languages and cultures that need to be studied today. One of the educational institutions in the city of Surabaya took the initiative to build a building that will be used to support the continuity of learning in the institution and the area around the institution. Thus, learning related to foreign languages and cultures can be fulfilled more optimally.

In this activity, it is known that the institution plans to build the Center for Language and Culture on an area of 600 m2 using the construction of a multi-storey building. The number of building floors that will be used is 4 floors with a building area of 1582.39 m2, which is divided into several classrooms, discussion rooms, and ballrooms. But (Putri Ambarwati et al., 2018)it states that before the implementation of a development project, it must first obtain development approval. In general, a development project can get approval by proving that the project is feasible to build. So, before it is realised, it is better to conduct a feasibility study of the building.

One of the stages that can be done is to first consider financial aspects, such as investment costs and the value of investment feasibility, so that there are no large losses in the future(Nugraha et al., 2023). In addition, investment analysis is needed to take into account the level of profit of the construction of a building for investors(Dewi et al., 2024). This analysis can also be called the financial analysis of a building. Financial analysis in general can be proven by using several assessment criteria such as Net Present Value (NPV), Benefit Cost Ratio (BCR), Internal Rate of Return (IRR), and Payback Period to determine whether or not the development is feasible to carry out(Putri Ambarwati et al., 2018). This analysis usually requires important data that will be used in the calculation process. The data can be in the form of planning data and building operational data for the next few years to ensure that the building is feasible for the construction process.

In this study, the financial feasibility analysis was carried out using the Discounted Cash Flow (DCF) method to determine the value of investment feasibility by considering the time value of money. This method is used to get a clearer and more accurate picture of the benefits of a project. In this method, cash flow needs to be projected over a certain period that can be determined based on the assumption of income, operational costs, taxes, and investments. The assessment criteria for the financial feasibility analysis used in this study refer to the Net Present Value (NPV),

Benefit Cost Ratio (BCR), Internal Rate of Return (IRR), Return on Investment (ROI), and Payback Period (PP). In this process, it will produce a financial feasibility value that can then be used for the process of submitting building construction approvals. Therefore, this study was conducted to determine the feasibility of a construction project before the building approval submission process takes place.

METHOD

The research in this article is based on a case study on the 4-storey construction project of the Center for Language and Culture building in one of the educational institutions in the city of Surabaya, East Java. The methods used to obtain data are observation and field surveys, interviews with the implementing contractor, and other data obtained through literature study, data processing, and data analysis. The data obtained was in the form of data on planning costs, supervision costs, construction costs, floor plan data, building rental data, and building operational data. The stages of analysis that will be carried out include planning cost analysis, supervision cost analysis, construction cost analysis, revenue analysis, operational cost analysis, and financial reliability analysis.

In the construction of this building, 100% of the grant funds obtained from the Asian Development Bank (ADB) were used. With grant funds, project owners do not need to reimburse the construction costs to the funding provider. However, these costs are still included in the category of costs that must be returned to the project owner or referred to as loans. So, it is necessary to calculate the amount of payments that must be made each year to the owner, which is called the calculation of debt service. In this study, the calculation of debt service is carried out by assuming a return on costs over the life of the investment. The following formula is used to calculate debt service every year:

$$Debt\ Service = P\left(\frac{i(1+i)^n}{(1+1)^n-1}\right) \quad (1)$$

Where:

P = Development Cost
i = Discount Factor
n = Debt Repayment Period

In this study, the financial feasibility analysis was calculated using the Discounted Cash Flow (DCF) method. The DCF method is used to evaluate the present value of future cash flows by subtracting the value of those cash flows using a specified discount rate. This method is often used to appraise companies, investment projects, and properties(Miles et al., 2015). The criteria for assessing financial feasibility used in the study are as follows:

$$DCF = \frac{Revenue-Expenses-Debt\ Service}{(1+i)^n} \quad (2)$$

Net Present Value (NPV) is a method used in the analysis of investment feasibility, which is commonly known as the *present worth* (Present Value), which is used to determine the profitability of a plan in a given period of analysis(Akbar et al., 2014). If the NPV is positive, it means that the project is considered feasible to run and worthwhile(Hardyoko et al., 2021). Here's the Formula *Net Present Value* (NPV):

$$NPV = \sum_{n=0}^{y} \frac{C_n}{(1+i)^n} \quad \text{or} \quad NPV = \sum_{n=0}^{y} DCF \quad (3)$$

Where:

y = investment age (years)
C_n = Cash flow in year n
i = discount factor

Internal Rate of Return (IRR) is the discount rate that results in a project's NPV value equal to zero(Zulaihah et al., 2019). In other words, IRR indicates the expected rate of return on investment. The investment will be more profitable if the IRR is higher(Darmawan, 2016). If IRR > *discount factor* means then the project is feasible to run otherwise then the project is not feasible to run(Sakinah et al., 2021). Here's the formula *Internal Rate of Return* (IRR):

$$IRR = i_1 + (i_2 - i_1)\frac{NPV_1}{NPV_1+NPV_2} \quad (4)$$

Where:

i_1 = negative NPV interest rate smallest
i_2 = negative NPV interest rate smallest
NPV_1 = the present value with i_1
NPV_2 = the present value with i_2

Benefit-Cost Ratio (BCR) is the ratio between the expected benefits of a project and the costs incurred to carry out the project(Putri Ambarwati et al. 2018). When there is more than one BCR, it signifies that the project's profits exceed the costs incurred. Here's the formula *Benefit-Cost Ratio* (BCR):

$$\text{BCR} = \frac{Benefit}{Cost} \quad (5)$$

Return on Investment (ROI) is a metric used to assess a company's finances based on net cash flow(Sakinah et al., 2021). Here's the formula for *Return on Investment* (ROI):

$$\text{ROI} = \frac{Annual\ Cash\ Flow}{Nilai\ Investasi} \times 100\% \quad (6)$$

Payback Period (PP) is a method used to identify the breakeven points of return on capital during the economic life of the project(Ulfa & Prasetyo, 2020) The calculation of the Payback Period (PP) in this study uses an expenditure and income approach, projected onto a graph. Next, the calculation is performed using the formula, as follows:

$$\text{PP} = n_1 + \left(\frac{-c_1}{c_2 - c_1}\right)(n_2 - n_1) \quad (7)$$

Where:

n_1 = Years before break event
n_2 = Years after break event
c_1 = Cash flow before break event
c_2 = Cash flow after break event

The data calculation in this study was assisted by *Microsoft Excel 2019* and *Microsoft Word 2019 software.*

RESULT AND DISCUSSION

The analysis of planning data in this study was conducted by examining the planning costs, supervision costs, and construction costs incurred during the building construction process. The planning and supervision costs for this building construction refer to the Minister of Public Works and Housing Decree of 2024 (Kementrian PUPR, 2024). Meanwhile, the construction costs were obtained from general project data on the construction of the Center for Language and Culture building. According to the Minister of Public Works and Housing Decree of 2024, the Center for Language and Culture building falls under the category of government building construction with a non-simple classification. Therefore, the planning costs can be estimated at IDR665,010,857.95, while the supervision costs are calculated at IDR476,449,931.50.

The construction costs of this building project were obtained from a grant provided by the ASEAN Development Bank (ADB) to the owner. The total construction cost of this building amounts to IDR8,471,001,782.06, which will be disbursed gradually throughout the construction process. At the beginning of construction in late 2023, IDR8,003,222,277.97 was allocated to cover licensing, preparatory work, structural work, architectural work, and MEP (Mechanical, Electrical, and Plumbing) work. Subsequently, in 2024, IDR467,779,504.10 was disbursed to complete the architectural and MEP work.

Following the analysis of planning data, an operational data analysis will be conducted, covering the building's annual revenue and operational costs. The revenue generated by this project comes from hall room rentals per square meter, cafeteria rentals per square meter, foreign language courses, English proficiency tests, and annual events. Rental prices for the project's revenue are estimated based on the Government of East Java Province's 2023 Standard Expenditure Analysis (Peraturan Gubernur, 2022).

The building is expected to begin operations in mid-2025, with its revenue for that year assumed to be 50% of its annual revenue. The recap of the project's annual revenue can be seen in Table 1.

Table 1. Recapitulation of Center for Language and Culture Building Revenue per Year

Year	Total Revenue per Year (IDR)
2025	3,557,306,928.03
2026	7,114,613,856.07
2027	7,114,613,856.07
2028	7,114,613,856.07
2029	7,114,613,856.07
2030	7,114,613,856.07
2031	7,114,613,856.07
2032	7,114,613,856.07
2033	7,114,613,856.07
2034	7,114,613,856.07
2035	7,114,613,856.07
2036	7,114,613,856.07
2037	7,114,613,856.07
2038	7,114,613,856.07
2039	7,114,613,856.07

Source: Processed Data (2025)

Operational costs in a building refer to the expenses incurred by an institution or company to carry out daily activities. In the Center for Language and Culture building, the recap of operational costs can be seen in Table 2.

Table 2. Recapitulation of Center for Language and Culture Building Operational Costs

Year	Total Operational Costs per Year (IDR)
2025	1,430,823,933.32
2026	2,861,647,866.64
2027	2,861,647,866.64
2028	2,861,647,866.64
2029	2,861,647,866.64
2030	2,861,647,866.64
2031	2,861,647,866.64
2032	2,861,647,866.64
2033	2,861,647,866.64
2034	2,861,647,866.64
2035	2,861,647,866.64
2036	2,861,647,866.64
2037	2,861,647,866.64
2038	2,861,647,866.64
2039	2,861,647,866.64

Source: Processed Data (2025)

Before conducting a financial feasibility analysis, it is necessary to consider the interest rate and capital repayment for the building. The project's capital comes entirely from a 100% grant provided by the ASEAN Development Bank (ADB). However, the expended capital should ideally be fully returned to the project owner, categorising the cost as a loan. The bank interest rate is assumed to be 8.5%, referring to the interest rate of Bank Mandiri, as the contractor collaborates with this bank for payment instalments. The capital amount is expected to be repaid annually for 15 years based on the investment lifespan, which will be calculated using Equation 1.

$$\begin{aligned} Debt\ Service &= IDR8{,}471{,}001{,}782.06 \left(\frac{8.5\%(1+8.5\%)^{15}}{(1+8.5\%)^{15}-1}\right) \\ &= IDR8{,}471{,}001{,}782.06 \times 0.12 \\ &= IDR1{,}020{,}081{,}943.08 \end{aligned}$$

The Discounted Cash Flow (DCF) method is applied after analyzing planning data, operational data, interest rates, and capital repayment. The DCF method is one of the essential techniques used in investment analysis to provide an overview of future cash flows. DCF accounts for the time value of money by using a discount rate that reflects the cost of capital or the expected rate of return. In this project, a discount rate of 8.5% is used, referring to the interest rate of Bank Mandiri, as the contractor collaborates with this bank for payment installments. The Discounted Cash Flow value can be determined after a project generates annual revenue. The results of the DCF analysis can be found in Table 3.

Table 3. Recapitulation of Discounted Cash Flow per Year

Year to	Discounted Cash Flow per Year (IDR)
0	(647,371,113.51)
1	564,342,281.73
2	2,746,190,444.77
3	2,531,051,101.17
4	2,332,765,991.86
5	2,150,014,739.04
6	1,981,580,404.65
7	1,826,341,386.77
8	1,683,263,950.94
9	1,551,395,346.49
10	1,429,857,462.20
11	1,317,840,978.99
12	1,214,599,980.63
13	1,119,446,986.76
14	1,031,748,374.89
15	950,920,161.19

Source: Processed Data (2025)

Financial feasibility analysis is conducted by considering evaluation criteria. The first criterion is the calculation of the Net Present Value (NPV), which will be determined using Equation 1 with a discount factor of 8.5% over a 15-year investment period. Additionally, the NPV value can be obtained by summing the results of the Discounted Cash Flow analysis. Here is the calculation using the equation 3:

$$\text{NPV} = \sum_{n=0}^{y} DCF$$

= - 647,371,113.51 + 564,342,281.73 + 2,746,190,444.77 + 2,531,051,101.17 + 2,332,765,991.86 + 2,150,014,739.04 + 1,981,580,404.65 + 1,826,341,386.77 + 1,683,263,950.94 + 1,551,395,346.49 + 1,429,857,462.20 + 1,317,840,978.99 + 1,214,599,980.63 + 1,119,446,986.76 + 1,031,748,374.89 + 950,920,161.19

= IDR15,312,986,696.52

The NPV calculation for the Center for Language and Culture building amounts to IDR15,312,986,696.52, indicating a positive NPV (NPV > 0). Thus, the construction of the Center for Language and Culture building can be considered financially feasible.

The second criterion is the calculation of the Internal Rate of Return (IRR), which represents the interest rate at which the NPV equals zero. The IRR calculation is determined by comparing the IRR value with the interest rate. In this study, the interest rate is set at 8.5%, meaning the IRR must exceed this rate. Using the trial-and-error method, the NPV equals zero when the interest rate ranges between 28% and 29% over the 15-year investment period. Subsequently, further calculations are carried out using Equation 4.

$$\text{IRR} = 28\% + (29\% - 28\%)\left(\frac{IDR95{,}687{,}925.08}{IDR246{,}486{,}623.82 + IDR95{,}687{,}925.08}\right)$$

$$= 28\% + 0{,}28\%$$

$$= 28.28\%$$

Based on the calculations, the IRR value is 28.28%, which is higher than the interest rate of 8.5%. Therefore, the construction of the Center for Language and Culture building can be considered feasible.

Next, the third evaluation criterion involves calculating the Benefit-Cost Ratio (BCR). In this study, the BCR is determined by dividing the NPV by the development cost, as shown in Equation 5. According to the existing regulations, the BCR must be greater than 1 (BCR > 1) for the project to be declared feasible.

$$\text{BCR} = \frac{Benefit}{Cost}$$

$$= \frac{IDR23{,}783{,}988{,}478.581}{IDR8{,}471{,}001{,}782.06}$$

$$= 2.47$$

The results obtained a BCR value of 2.47, which means more than 1, where it can be stated that the construction of the CLC building can be considered feasible.

After confirming the feasibility of the third criterion, the analysis proceeds to the fourth criterion—the calculation of the Return on Investment (ROI), which is used to measure how efficiently a project generates profit based on net cash flow. So, before calculating ROI, the annual cash flow is first determined. The result is then divided by the initial investment value. Below is the annual cash flow calculation using the present cash flow to annual cash flow formula:

$$\textit{Annual Cash Flow} = \text{P}\left(\frac{i(1+i)^{15}}{(1+i)^{15}-1}\right)$$

$$= \text{IDR23,783,988,478.581}\left(\frac{0{,}85(1+0{,}85)^{15}}{(1+0{,}85)^{15}-1}\right)$$

$$= \text{IDR23,783,988,478.581} \times 0.12$$

$$= \text{IDR2,942,035,594.615}$$

After obtaining the annual cash flow value of Rp2,942,035,594.615, the ROI is then calculated by dividing the annual cash flow result by the initial investment value. The ROI calculation should exceed the interest rate of 8.5% to be considered viable. The ROI value is determined using the following equation 6:

$$\text{ROI} = \frac{Annual\ Cash\ Flow}{Nilai\ Investasi} \times 100\%$$

$$= \frac{IDR2.942.035.594{,}615}{IDR8.471.001.782{,}06} \times 100\%$$

$$= 34.73\%$$

The ROI calculation resulted in 34.73%, which is higher than the interest rate of 8.5% (ROI > 8.5%). Therefore, the construction of the Center for Language and Culture building is deemed feasible for implementation.

Finally, the Payback Period (PP) is calculated using the expenses and income approach, which will be projected onto a chart. To create the graph, a recap of the building's revenue and expenses, including construction costs, is required.

Below is the cumulative recap table of the building's revenue and expenses, which can be seen in Table 4, and the chart can be viewed in Figure 1.

Table 4. Recapitulation of Cumulative Revenue and Cumulative Expenses

Years	Cumulative Revenue (IDR)	Cumulative Expenses (IDR)	Cash Flow
0	-	9,118,372,895.57	(9,118,372,895.57)
1	3,557,306,928.03	12,063,368,447.93	(8,506,061,519.89)
2	10,671,920,784.10	15,945,098,257.65	(5,273,177,473.55)
3	17,786,534,640.17	19,826,828,067.38	(2,040,293,427.21)
4	24,901,148,496.23	23,708,557,877.10	1,192,590,619.13
5	32,015,762,352.30	27,590,287,686.82	4,425,474,665.47
6	39,130,376,208.37	31,472,017,496.55	7,658,358,711.82
7	46,244,990,064.43	35,353,747,306.27	10,891,242,758.16
8	53,359,603,920.50	39,235,477,116.00	14,124,126,804.50
9	60,474,217,776.57	43,117,206,925.72	17,357,010,850.84
10	67,588,831,632.63	46,998,936,735.45	20,589,894,897.18
11	74,703,445,488.70	50,880,666,545.17	23,822,778,943.52
12	81,818,059,344.77	54,762,396,354.90	27,055,662,989.87
13	88,932,673,200.83	58,644,126,164.62	30,288,547,036.21
14	96,047,287,056.90	62,525,855,974.35	33,521,431,082.55
15	103,161,900,912.97	66,407,585,784.07	36,754,315,128.89

Source: Processed Data (2025)

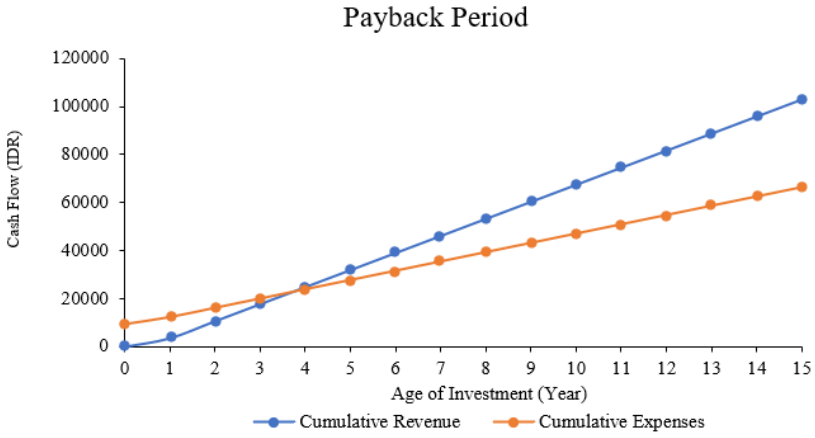

Figure 1. Chart of the expenses and revenue approach

Source: Processed Data (2025)

Based on the graph above, the interpolation formula is used to obtain an accurate Payback Period (PP) value. The calculation using Equation 7 is as follows:

PP $= n_1 + \left(\frac{-c_1}{c_2 - c_1}\right)(n_2 - n_1)$

$= 3 + \left(\frac{-(-IDR2.040.293.427,21)}{IDR1.192.590.619,13 - (-IDR2.040.293.427,21)}\right)(4 - 3)$

= 3 + 0,63

= 3,63 tahun

a = 0,63 × 12

= 7,56

= 8 bulan

Based on the above calculations, it can be concluded that the Payback Period (PP) will occur around the third year and the eighth month.

CONCLUSION

Based on the financial feasibility study conducted using the Discounted Cash Flow (DCF) method, several evaluation criteria were considered, including Net Present Value (NPV), Internal Rate of Return (IRR), Benefit-Cost

Ratio (BCR), Return on Investment (ROI), and Payback Period (PP). The results show a positive Net Present Value (NPV) of IDR15,312,986,696.52 (NPV > 0), an Internal Rate of Return (IRR) of 28.28%, which is greater than the interest rate of 8.5%, a Benefit-Cost Ratio (BCR) of 2.47 (BCR > 1), and a Return on Investment (ROI) of 34.73%, exceeding the interest rate of 8.5%. Additionally, the initial investment is expected to be fully recovered in 3 years and 8 months.

REFERENCES

Abuk, G. M., & Rumbino, Y. (2020). Analisis Kelayakan Ekonomi Menggunakan Metode Net Present Value (NPV), Metode Internal Rate Of Return (IRR) Payback Period (PBP) Pada Unit Stone Crusher Di CV. X Kab. Kupang Prov. NTT. *Jurnal Ilmiah Teknologi FST Undana*, *14*(2), 68–75.

Aditrio, M. S., & Oetomo, W. (2023). Analisis Investasi Pembangunan Proyek Rumah Sakit Al-Arafah Kota Kediri. *Jurnal Ilmiah Teknik Dan Manajemen Industri*, *3*(1), 802–814. https://doi.org/10.46306/tgc.v3i1.86

Akbar, H. A., Sugiyarto, & Laksito, B. (2014). Analisis Investasi Bangunan Gedung (Studi Kasus Pada Proyek Pembangunan Gedung Rawat Inap RSUD Dr. Kariadi Semarang). *E-Jurnal Matriks Teknik Sipil* , *2*(3), 297–304. https://doi.org/https://doi.org/10.20961/mateksi.v2i3.37395

Darmawan, D. (2016). *Analisis Investasi Pembangunan Rusunawa Tambakkemerakan, Kecamatan Krian, Kabupaten Sidoarjo*.

Dewi, I. G. A. W. K., Pramana, I. M. W., & Sudiarta, I. K. (2024). Analisis Kelayakan Investasi Proyek Pembangunan Asvara Resort Manuaba Ubud. *Jurnal Talenta Sipil*, *7*(2), 906. https://doi.org/10.33087/talentasipil.v7i2.646

Hardyoko, S., & Namara, I. (2021). Analisis Kelayakan Finansial Proyek Pembangunan Perumahan di Wilayah Tangerang Selatan. *Prosiding Seminar Nasional Ketekniksipilan, Infrastruktur Dan Industri Jasa Konstruksi (KIIJK)*, 43–48. https://journal.unilak.ac.id/index.php/teknik/article/download/16310/5714/

Kementrian PUPR, Keputusan Menteri Pekerjaan Umum dan Perumahan Rakyat Tentang Pedoman Perhitungan Standar Harga Satuan Tertinggi dan Tabel Daftar Komponen Biaya Pembangunan Bangunan Gedung Negara (2024). https://jdih.pu.go.id/detail-dokumen/KepmenPUPR-nomor-943-tahun-2024-Pedoman-Perhitungan-Standar-Harga-Satuan-Tertinggi-dan-Tabel-Daftar-Komponen-Biaya-Pembangunan-Bangunan-Gedung-Negara

Miles, M. E., Netherton, L. M., & Schmitz, A. (2015). *Real Estate Development - 5th Edition: Principles and Process* (Vol. 5).

Nugraha, O. D. W., Taufiq, M., Apriliano, D. D., Khamid, A., & Wahidin. (2023). Analisis Kelayakan Investasi Proyek Pembangunan Perumahan Ditinjau dari Aspek Teknis dan Finansial. *Era Sains: Jurnal Penelitian Sains, Keteknikan Dan Informatika*, *1*(3), 108–121. https://jurnal.eraliterasi.com/index.php/erasains/article/view/83

Peraturan Gubernur, Peraturan Gubernur Jawa Timur Nomor 69 Tahun 2022 Tentang Analisis Standar Belanja Pemerintah Provinsi Jawa Timur Tahun 2022 (2022). https://peraturan.bpk.go.id/Details/253891/pergub-prov-jawa-timur-no-69-tahun-2022

Putri Ambarwati, A., Kustiani, I., & Widyawati, R. (2018). Analisis Investasi Rekayasa Proyek Pembangunan RS PTN Universitas Lampung. *Journal Rekayasa Sipil Dan Desain*, *6*(4), 519–528. https://journal.eng.unila.ac.id/index.php/jrsdd/article/view/1081

Risqi, A. (2019). *Peran Bahasa Inggris Terhadap Perkembangan Bahasa Indonesia dan Pendidikan Di Indonesia*. https://doi.org/http://dx.doi.org/10.31227/osf.io/a4q56

Sakinah, E. N., Putra, I. N. D. P., & Rumintang, A. (2021). Analisis Kelayakan Ekonomi Pada Pembangunan Perkantoran Tower Poros Maritim Surabaya. *PADURAKSA: Jurnal Teknik Sipil Universitas Warmadewa*, *10*(2), 224–231. https://doi.org/10.22225/pd.10.2.2773.224-231

Ulfa, Z. M., & Prasetyo, A. D. (2020). Financial Feasibility Study of the Construction of New High School Building (Case Study of XYZ Foundation). *European Journal of Business and Management Research*, *5*(4), 1–6. https://doi.org/10.24018/ejbmr.2020.5.4.467

Wardhana, A., Kharisma, B., & Noven, S. A. (2020). Dinamika Penduduk dan Pertumbuhan Ekonomi di Indonesia. *Buletin Studi Ekonomi*, *25*(1), 22–40. https://doi.org/https://doi.org/10.24843/BSE.2020.v25.i01.p02

Zulaihah, L., Waluyo, M. R., & Mardhiyya, A. (2019). Analisis Studi Kelayakan Investasi Dengan Metode Capital Budgeting. *Jurnal IKRA-ITH TEKNOLOGI*, *3*(3), 23–30. https://journals.upi-yai.ac.id/index.php/ikraith-teknologi/issue/view/41