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Feasibility Research on Low-Rise Apartment and Landed Housing Development within Smart Living Areas in Indonesia's Secondary City (A Case Research at PT.XYZ)

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ABSTRACT

Indonesia's growing urbanization, population growth, and changing work behaviors have increased the demand for diverse housing options. PT XYZ, established in 2021, plans to meet this demand by developing low-rise apartments and landed housing in smart residential areas in secondary cities. This research aims to assess the feasibility of this project by analyzing market demand, financial performance, and regulatory factors. Using financial models such as Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PBP), as well as sensitivity analysis and Monte Carlo simulation, this research evaluates the financial viability of the project. The results show strong profit potential, with a positive NPV and IRR of 57.41%, achieving a payback within four years. The project not only fulfills the housing needs of Millennials and Gen Z, but also aligns with government initiatives to promote home ownership. The implications of this research include improving housing accessibility for young, dynamic demographic groups, such as Millennials and Gen Z, as well as strengthening developer strategies in the face of changing market challenges.

Keywords: Feasibility Research, Smart Living, Housing Development, Millennials, Financial Performance, Secondary Cities.

INTRODUCTION

In Indonesia's dynamic property and real estate industry, developers play a key role in shaping communities by conceptualizing, financing, and managing projects (Krishna et al., 2017). They work with architects, engineers, and government bodies to navigate regulations and market demands, contributing significantly to the economy (Saieg et al., 2018). The construction sector, contributing 9.92% to GDP, and the real estate industry's 2.42% share, highlight the importance of developers in driving infrastructure growth and community development (Huang et al., 2018).



Figure 1. Gross Domestic Product by Industry 2023

According to BPS data, the substantial investment budgeting of 1,078 trillion Rupiah in the property sector in 2023 demonstrates the government's strong support for this GDP development (Szczygielski et al., 2017). This figure represents the second-largest domestic investment following Mining in the same period (Loayza & Rigolini, 2016). However, the 126 trillion Rupiah realization project is a better sum than the 52 trillion Rupiah figure from 2022. In spite of government investment support, irreversible urbanization and population expansion also contribute significantly to the rise in demand for safe housing, which Maslow's Hierarchy of Needs identifies as a basic human need (Carboni, 2017). As a result, home ownership is still a major problem in Indonesia, making property the most sought-after asset that is hotly contested by different parties (Dewita et al., 2020). The imbalance between supply and demand in the housing market is further highlighted by this spike in prices, which indicates that demand exceeds supply (Gyourko & Molloy, 2015).

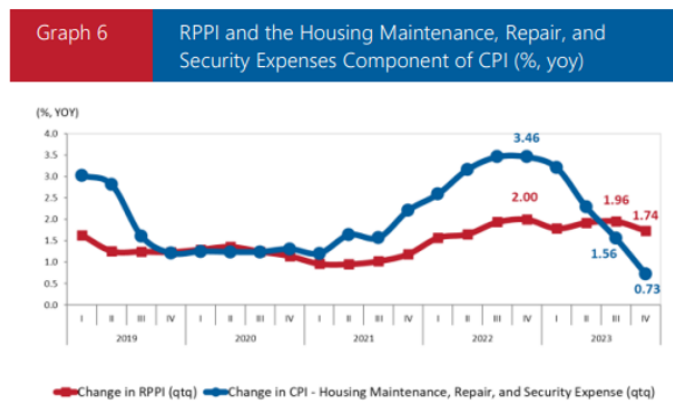


Figure 2. RPPI and the Housing Maintenance, Repair, and Security Expenses Component of CPI (%yoy) (Bank Indonesia, 2023)

The latest Residential Property Price Survey by Bank Indonesia shows that residential property prices in the primary market rose in Q4 2024, but at a slower pace than before

(Roestamy et al., 2022). The Residential Property Price Index (RPPI) grew by 1.74% year-on-year, down from 1.96% in Q3. Small residential properties led the growth, increasing by 2.15% year-on-year, while medium and large houses saw slower gains. On a quarterly basis, prices rose by 0.25%, down from 0.48% in Q3, with small, medium, and large houses contributing to the slowdown (Tang et al., 2018). Regionally, limited gains were seen in Pontianak, Padang, and Surabaya.



Figure 3. Annual Residential Property Increase in Fourth Quarter 2023 by Region (% yoy)

In Q4 2023, 10 of 18 surveyed cities reported higher residential property prices, while 8 cities saw moderation. Notable increases were in Pontianak (3.57% yoy), Banjarmasin (0.70% yoy), and Manado (0.32% yoy), with declines in Semarang, Balikpapan, Yogyakarta, and Bandung. The price trends align with milder inflationary pressures on building materials (Annicchiarico et al., 2024). However, rising prices are making homeownership increasingly difficult for younger generations, particularly Millennials and Gen Z (Bleemer et al., 2021).

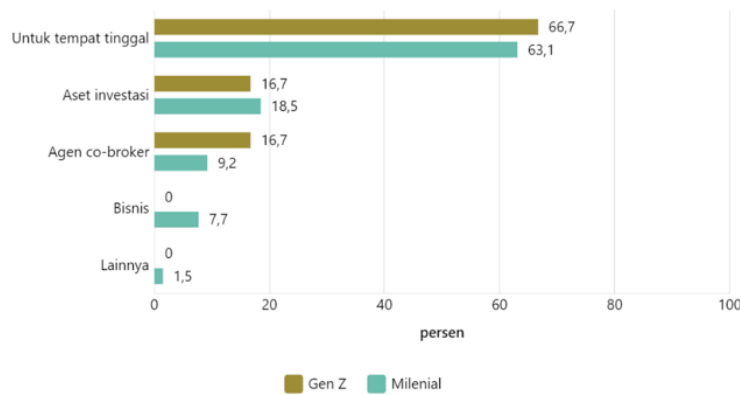


Figure 4. Millennial and Gen Z Motivation When Buying House in 2023

As of 2023, 81 million Indonesian millennials are still without housing, despite strong demand, with 66.7% of Millennial and 63.1% of Gen Z buyers seeking homes for residential purposes.

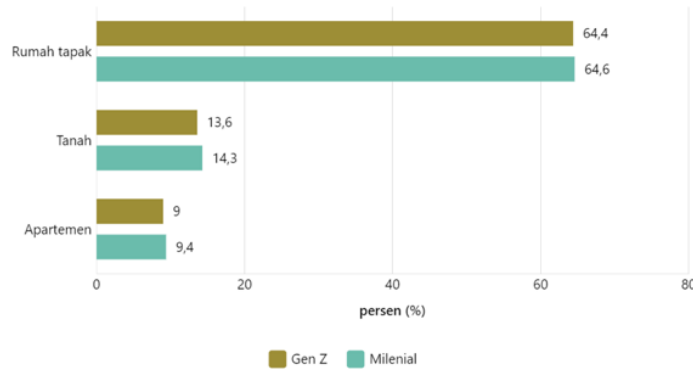


Figure 5. Historical Coal Price (ESDM, 2024)

To address this, the government has introduced measures like VAT discounts, subsidies for low-income individuals, and plans to extend home loan periods to 35 years, aiming to ease repayment and boost homeownership. These efforts have contributed to a more inclusive housing market, with increased homeownership rates. Landed houses remain the preferred option, with 64.4% of buyers choosing them over other types of housing. Despite high demand, supply shortages persist in the real estate sector.

Opportunity in Property and Real Estate Business

PT. XYZ has a strategic opportunity to penetrate secondary cities like Semarang, Balikpapan, and Yogyakarta at a reduced cost, enabling competitive pricing or larger margins after the market stabilizes, thanks to the decline in property prices in these areas. These circumstances are especially advantageous for housing developments that are specifically targeted at younger generations who are having difficulty becoming homeowners. Addressing this need will allow PT. XYZ to gain a sizable portion of the market.

These locations have high long-term growth potential despite the recent price declines, setting PT. XYZ up for future economic recovery and property gains (Bank, 2023). Additionally, the cooling market lessens rivalry, which helps PT. XYZ stand out from the competition and get better land agreements. The feasibility of such developments could be further improved by government assistance in the form of tax cuts and subsidies. Furthermore, the trend toward flexible work schedules opens up new possibilities for residential developments that meet changing lifestyle demands (International, 2023).

The goal of PT. XYZ to go into the residential real estate market—more especially, the landed housing sector—represents a major strategic move for the business. To determine the viability of this endeavor, PT. XYZ intends to carry out an extensive feasibility assessment by utilizing its current land holdings and in-depth market knowledge.

This research will explore the feasibility of PT. XYZ's proposed project by focusing on key factors such as market demand, financial viability, and regulatory considerations. By analyzing current trends in Indonesia's real estate market and addressing the challenges faced by Millennials and Gen Z, this research aims to guide PT. XYZ in making informed decisions about entering the residential housing sector. The findings will not only assess the project's potential success but also provide insights into how developers can navigate and capitalize on opportunities in a rapidly evolving industry.

Navigating Market Entry Challenges in Indonesia's Secondary Cities

In secondary cities like Semarang, where increased demand—particularly from Millennials and Gen Z—is faced with affordability concerns because of the disparity between incomes and housing costs, PT. XYZ has the challenge of breaking into the residential real estate market. Rapid population expansion and urbanization exacerbate this problem by placing more pressure on the housing supply. A favorable climate for real estate development is produced by Indonesia's strong economic growth, which is bolstered by significant government investments in real estate and infrastructure. By streamlining rules and cutting expenses, policies like the Omnibus Law and VAT incentives improve this possibility. PT. XYZ must, however, manage economic volatility, such as inflation and worldwide unpredictability, which may have an impact on housing demand.

The key business issue is determining the feasibility and profitability of developing a 10-hectare land in phases, targeting the middle-upper income group. This approach aims to align with market demand while managing financial risks in a volatile market. PT. XYZ's strategy focuses on providing well-targeted housing solutions for Millennials and Gen Z, using a build-to-order model to minimize risk and adapt to market changes. The financial viability of these developments is crucial. The recent dip in property prices in cities like Semarang offers a strategic entry point, but PT. XYZ must ensure profitability through careful market analysis, cost management, and competitive pricing. By phasing development and adopting a data-driven approach, the company can manage risks and position itself for long-term success.

Based on the above background, this research aims to assess the feasibility of this project by analyzing market demand, financial performance, and regulatory factors, providing insight into the potential success of PT XYZ's real estate development. The benefit of this research lies in its ability to provide strategic recommendations for PT XYZ to make informed decisions in land development, optimize resource allocation, and ensure long-term financial sustainability. The

findings will also provide a comprehensive understanding of the risks and opportunities in the Indonesian real estate market, especially for developers in the face of economic challenges such as inflation and global uncertainty.

RESEARCH METHOD

This research uses a quantitative approach with the aim of systematically evaluating the entry process of PT XYZ into the real estate market. This process begins with data collection through two main sources, namely primary data and secondary data. Primary data is collected through interviews and surveys with project managers or relevant stakeholders, to understand potential risks as well as obtain information related to budget and market projections. Meanwhile, secondary data was drawn from company documents, real estate market reports, annual reports, as well as macroeconomic trend analysis covering PESTEL elements (political, economic, social, technological, environmental, and legal) and Porter's Five Forces analysis.

The data used includes financial data, such as project costs, cash flow projections, interest rates, inflation, and profit forecasts, as well as market data, including real estate market conditions, competition levels, demand trends, and applicable government regulations. Data analysis techniques applied in this research include SWOT analysis to identify strengths, weaknesses, opportunities, and threats in the company's business plan. In addition, risk management is applied to analyze and address challenges that may arise.

Next, a financial feasibility research was conducted by calculating metrics such as Net Present Value (NPV), Internal Rate of Return (IRR), Profitability Index (PI), and Payback Period (PBP) to determine the financial viability of the project. After that, sensitivity and scenario analysis were conducted to evaluate the impact of changes in market conditions or financial variables on project feasibility. The final results of this research are conclusions and strategic recommendations regarding PT. XYZ's implementation plan in entering the real estate market by considering the feasibility and risks that have been analyzed.

Feasibility Study on Low-Rise Apartment and Landed Housing Development within Smart Living Areas in Indonesia's Secondary City (A Case Study at PT.XYZ)

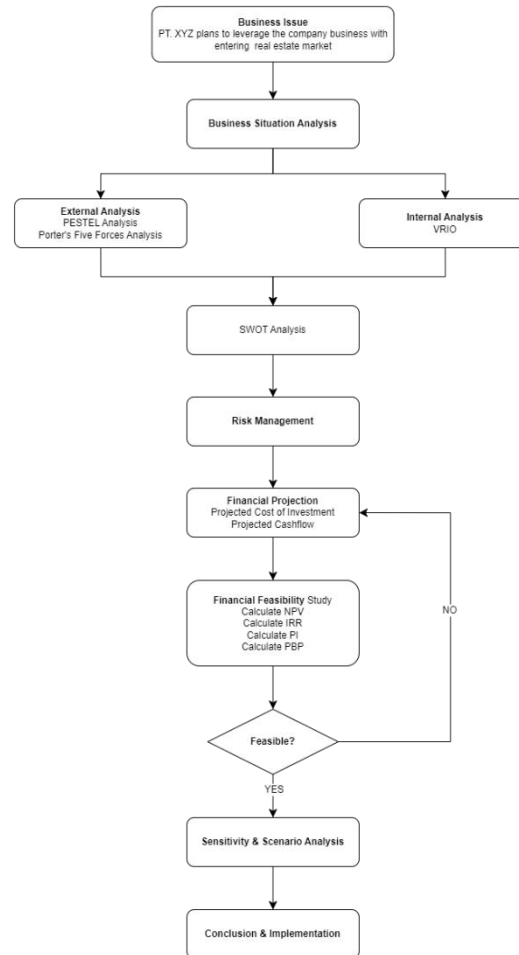


Figure 6. Research Flowchart

RESULT AND DISCUSSION

Capital Initial Investment

The Capital Initial Investment for PT. XYZ's project involves a strategic allocation of resources to develop both a low-rise apartment and landed housing. The investment covers all key areas, including housing development, facilities, landscaping, and pre-construction activities. To finance this comprehensive project, PT. XYZ has secured bank approval for a loan covering a significant portion of the total investment. However, the company has chosen to utilize only a portion of this approved loan, specifically 22%, to ensure a balanced approach to financing. This strategy allows PT. XYZ to leverage external funds while maintaining a cautious and sustainable financial structure, reducing potential risks associated with high levels of debt. The details as follows.

TOTAL INVESTMENT		BUDGET ALLOCATION	
LAND	TOTAL LAND COST	50 000 000 000	65.45%
PRE CONTRACT (PRE CONSTRUCTION)			
	1. Management Contractor (CM / PK)	25 200 000 0	
	2. Quantity Surveyor (QS)	25 200 000 0	
	3. Architect (ARI - IDW)	42 000 000 0	
	4. Civil Structure (STR)	25 200 000 0	
	5. Mechanical Electrical (MEPACV)	25 200 000 0	
	6. Landscape	25 200 000 0	
	TOTAL PRE CONTRACT	168 000 000	0.22%
	TOTAL LEGAL, PATENT, ETC.	5,04 000 000	0.65%
BUILDING COST			
	HOUSING UNIT		
	Number of Unit	324	
	Total Building Area	36,000	
	LOW-RISE UNIT		
	Number of Unit	1,013	
	Total Building Area	24,000	
	Cost per Meter Square	5,000,000	
	I. TOTAL COST IN GENERAL	97 200 000 000	
	FACILITIES & LANDSCAPE		
	Facilities & Infrastructure	9 000 000 000 0	
	Landscape	2,00 000 000 0	
	II. TOTAL COST ADDITIONAL HOTEL	9 200 000 000 0	
	TOTAL BUILDING COST	1,06 400 000 000 0	
	Total building area	50,000	
	Taxes: 10%	10 6,40 000 000 0	
	TOTAL BUILDING COST incl. Taxes	1,17 0,40 000 000 0	
LAND + BUILDING COST			
	GRAND TOTAL COST	1,67 0,40 000 000 0	
TOTAL PRE-SALES REVENUE			
	GRAND TOTAL COST		
TOTAL INVESTMENT (LAND + BUILDING + PRE CONTRACT)			
	GRAND TOTAL COST	1,67 7,12 000 000 0	
BANK LOAN			
	% approved bank loan from total invest.	70.0%	
	TOTAL BANK LOAN approved	1,169,280,000,000,000	
	% use of bank loan	22.0%	
XXXXXXXXXX	TOTAL BANK LOAN used	25 7,24 160 000 0	33.67%
	additional cash for building	-	
	additional cash for 1 year operation cost	-	
XXXXXXXXXX	TOTAL ADDITIONAL INVESTMENT	-	0.00%
			66.33%
	TOTAL OWNER COST	753,961,600,000	100.00%
REPAYMENT			
	Bank Interest Rate (% p.a.)	10%	
	Period of Repayment (years)	5	
	Principal Paid Every Year	6 7,25 9,60 000 0	

Figure 7. Capital Initial Investment

Interest Rate & Loan Schedule

This project will be using Loan from Bank, with 10% rate and 5 years repayment. The repayment schedule as seen below:

Feasibility Study on Low-Rise Apartment and Landed Housing Development within Smart Living Areas in Indonesia's Secondary City (A Case Study at PT.XYZ)

LOAN REPAYMENT (IN YEAR)	Principal Repayment	Interest	Total Repayment	Remaining Loan
1	-	-	-	257,241,600,000
2	-	-	-	257,241,600,000
3	51,448,320,000	25,724,160,000	77,172,480,000	205,793,280,000
4	51,448,320,000	20,579,328,000	72,027,648,000	154,344,960,000
5	51,448,320,000	15,434,496,000	66,882,816,000	102,896,640,000
6	51,448,320,000	10,289,664,000	61,737,984,000	51,448,320,000
7	51,448,320,000	5,144,832,000	56,593,152,000	-
TOTAL	257,241,600,000	77,172,480,000	334,414,080,000	
TOTAL PAID in year 5	257,241,600,000	77,172,480,000	334,414,080,000	
TOTAL REMAINING BALANCE in year 5				
TOTAL BANK LOAN USED	257,241,600,000			
SURPLUS or DEFICIT in year 5				

Figure 8. Loan Schedule

Weighted Average Cost of Capital

This research will compute the Weighted Average Cost of Capital (WACC) to ascertain the project's hurdle rate in order to assess the financial feasibility of PT XYZ's next real estate venture. The WACC takes into account a number of variables, such as the cost of debt, the cost of equity, and the general state of the market. The main inputs and the project's final WACC are compiled in the following table:

DATA	PERCENTAGE
Rf	7%
β	1.2
Rm	12%
Interest Rate	10%
Tax Rate	22%
Equity Percentage	66.33%
Debt Percentage	33.67%
Equity + Debt Percentage	100.00%
Cost of Equity (Ke)	13%
Cost of Debt (Kd)	7.8%
WACC	11.25%

Figure 9. WACC

This WACC value will subsequently be used as the discount rate to calculate the Net Present Value (NPV). Table shows the income statement, cashflow, and FCF of PT. XYZ project for 10 years projection:

Description	Year 1 (IDR)	Year 2 (IDR)	Year 3 (IDR)	Year 4 (IDR)	Year 5 (IDR)	Year 6 (IDR)	Year 7 (IDR)	Year 8 (IDR)	Year 9 (IDR)	Year 10 (IDR)
Revenue	281,636,925,000	381,364,425,000	386,095,646,250	200,785,003,563	206,001,174,991	115,016,579,991	120,767,409,991	126,805,779,440	133,146,068,412	139,803,371,833
Cost of Sales (65%)	183,063,001,250	247,886,876,250	250,962,170,063	130,510,252,316	133,900,763,744	74,760,776,994	78,499,816,494	82,423,756,636	86,545,944,467	90,872,191,691
Gross Profit	98,573,923,750	133,477,548,750	135,133,476,188	70,274,751,247	72,100,411,247	40,255,802,997	42,267,593,498	44,382,022,804	46,600,123,945	48,931,180,142
Operating Expenses (8%)	22,530,954,000	30,509,154,000	30,887,651,700	16,062,800,285	16,480,093,999	9,201,326,399	9,661,392,799	10,144,462,355	10,651,685,473	11,184,269,747
EBITDA	76,042,969,750	102,968,394,750	104,245,824,488	54,211,950,962	55,620,317,248	31,054,476,598	32,606,200,698	34,237,560,449	35,948,438,473	37,746,910,395
Interest	25,724,160,000	25,724,160,000	15,724,160,000	15,724,160,000	15,724,160,000	-	-	-	-	-
Loan Payment	51,448,320,000	51,448,320,000	25,724,160,000	25,724,160,000	25,724,160,000	-	-	-	-	-
EBT	-1,129,510,250	25,796,914,750	62,797,504,488	12,763,630,962	14,171,997,248	31,054,476,598	32,606,200,698	34,237,560,449	35,948,438,473	37,746,910,395
PPh (22%)	-	5,675,321,245	13,815,451,898	2,807,998,811	3,117,839,394	6,831,964,891	7,173,364,154	7,532,263,299	7,908,656,464	8,304,320,287
Net Income	-1,129,510,250	20,121,593,505	48,982,052,590	9,955,632,151	11,054,157,854	24,222,491,707	25,432,836,544	26,705,297,150	28,039,782,009	29,442,590,108

Figure 10. Income Statement Projection

Year	1	2	3	4	5	6	7	8	9	10
Sales Revenue (IDR)	228,128,909,250	308,905,184,250	312,737,473,464	162,635,852,886	166,860,951,744	93,163,429,794	97,818,602,094	102,712,681,347	107,845,315,419	113,240,731,185
Rental Income (IDR)	-5,112,951,025	2,012,059,351	4,898,205,259	995,563,215	1,105,415,785	2,422,249,171	2,543,283,654	2,670,529,715	2,803,978,201	2,944,259,011
Total Cash Inflows (IDR)	223,016,908,225	310,917,243,601	317,635,678,723	163,631,416,101	167,966,367,529	95,585,678,965	100,361,885,748	105,383,211,062	110,649,293,620	116,185,990,196
Cost of Sales (IDR)	136,877,354,550	185,343,110,550	187,642,484,078	97,581,511,732	100,116,571,046	55,898,057,876	58,691,160,094	61,627,613,808	64,707,189,251	67,944,431,319
Operating Expenses (IDR)	-60,834,379,500	-82,374,724,750	-83,396,664,600	-43,369,564,962	-44,496,251,744	-24,843,580,200	-26,084,960,700	-27,390,050,449	-28,758,750,049	-30,197,529,757
Debt Service (IDR)	51,448,320,000	51,448,320,000	25,724,160,000	25,724,160,000	25,724,160,000	0	0	0	0	0
Total Cash Outflows (IDR)	127,491,295,050	154,416,370,800	129,970,180,478	79,936,106,770	81,344,480,770	31,054,476,598	32,606,200,698	34,237,560,449	35,948,438,473	37,746,910,395

Figure 11. Cashflow Projection

Year	EBITDA (IDR)	Interest Paid (IDR)	Taxes Paid (IDR)	Operating Cash Flow (OCF) (IDR)	Loan Payment (IDR)	CAPEX (IDR)	Free Cash Flow (FCF) (IDR)
1	76,042,969,750	25,724,160,000	0	50,318,809,750	51,448,320,000	50,000,000,000	-51,129,510,250
2	102,968,394,750	25,724,160,000	5,675,321,245	71,568,913,505	51,448,320,000	0	20,121,593,505
3	104,245,824,488	15,724,160,000	13,815,451,898	74,706,212,590	25,724,160,000	0	48,982,052,590
4	54,211,950,962	15,724,160,000	2,807,998,811	35,679,792,151	25,724,160,000	0	9,955,632,151
5	55,620,317,248	15,724,160,000	3,117,839,394	36,778,317,854	25,724,160,000	0	11,054,157,854
6	31,054,476,598	0	6,831,984,891	24,222,491,707	0	0	24,222,491,707
7	32,606,200,698	0	7,173,364,154	25,432,836,544	0	0	25,432,836,544
8	34,237,560,449	0	7,532,263,299	26,705,297,150	0	0	26,705,297,150
9	35,948,438,473	0	7,908,656,464	28,039,782,009	0	0	28,039,782,009
10	37,746,910,395	0	8,304,320,287	29,442,590,108	0	0	29,442,590,108
						NPV	IDR 2,521,908,665,509
						IRR	57.41%
						PBP	4 years
						PI	1.5

Figure 12. FCF, NPV, IRR, PBP, PI of PT. XYZ's Project

Sensitivity & Scenario Analysis

Scenario	NPV (IDR)	IRR	PBP (Years)	PI
Base Case	2,521,908,665,509	57.41%	4	1.5
Revenue +10%	2,941,967,118,869	66.60%	3	1.75
Revenue -10%	2,101,850,212,149	48.85%	4	1.25
Revenue +20%	3,361,725,572,229	75.50%	3	2
Revenue -20%	1,681,792,758,789	40.00%	5	1
Revenue -30%	1,261,735,305,429	30.20%	6	0.75
Revenue -40%	841,677,852,069	20.50%	7	0.5
Revenue -50%	421,620,388,710	10.80%	8	0.25
Revenue -60%	-18,437,054,650	-0.90%	Never	-0.1
Cost of Sales +10%	2,354,041,078,700	49.60%	4	1.4
Cost of Sales -10%	2,689,776,252,318	67.67%	3	1.6
Cost of Sales +20%	2,186,173,491,891	41.80%	5	1.3
Cost of Sales +30%	2,018,305,905,082	33.20%	6	1.2
Cost of Sales +40%	1,850,438,318,273	24.60%	7	1.1
Cost of Sales +50%	1,682,570,731,464	16.00%	8	1
Cost of Sales +60%	1,514,703,144,655	7.40%	Never	0.9
Discount Rate +2%	2,234,516,017,069	57.41%	4	1.33
Discount Rate -2%	2,850,438,188,447	57.41%	4	1.7
Discount Rate +4%	1,947,123,368,628	57.41%	4	1.16
Discount Rate +6%	1,659,730,720,188	57.41%	4	1.03
Discount Rate +8%	1,372,337,071,747	57.41%	4	0.9
Discount Rate +10%	1,084,943,423,307	57.41%	5	0.75
Discount Rate +12%	797,549,774,866	57.41%	5	0.6

Metric	Value
Minimum NPV	IDR -64,631,170,457.80
Maximum NPV	IDR 4,333,728,400,103.26
Mean NPV	IDR 2,526,802,327,549.57
Standard Deviation of NPV	IDR 488,066,717,749.74
Median NPV	IDR 2,520,797,607,724.92
Kurtosis	-0.0495
Skewness	0.0841
Probability of NPV < 0	5%

Figure 13. Sensitivity and Monte Carlo of PT. XYZ's Project

The sensitivity analysis reveals that the project remains resilient under moderate changes, but extreme negative scenarios, such as a 50% revenue decline or a significant increase in the cost of sales, could render the project non-viable with a negative NPV and extended payback period (John et al., 2016). Additionally, a substantial rise in the discount rate could also lead to negative financial outcomes, emphasizing the importance of robust risk management and close monitoring of market conditions to safeguard the project's viability.

The Monte Carlo analysis further supports the project's robustness, showing a low probability (5%) of a negative NPV, which suggests that the project is likely to be profitable under most scenarios. However, the small risk of loss underscores the need for strategic risk management, including diversifying revenue streams and securing cost efficiencies, to mitigate potential financial risks. Overall, the project has strong potential for success, but it requires proactive strategies to manage possible adverse conditions effectively.

Business Solution

The implementation plan is designed to ensure that PT. XYZ's low-rise apartment and landed housing development within a smart living area in Indonesia's secondary city is executed efficiently, within budget, and with maximum profitability. Each phase of the plan is aligned with the findings of the feasibility research, sensitivity analysis, and Monte Carlo simulations, ensuring that the project remains financially viable under various scenarios.

The plan emphasizes early-stage market research and feasibility confirmation to validate financial projections and reduce market demand risk. Strategic financing and partnership arrangements are prioritized to secure the necessary resources and control costs, thereby mitigating financial and operational risks. The construction and development phase is carefully structured to maintain quality and adherence to timelines, with a strong focus on integrating smart living technologies to differentiate the project in the market.

The sales, handover, and post-development phase ensures that the project's financial metrics, such as NPV and IRR, are realized through effective sales strategies and quality management. The ongoing facility management plan ensures that the development remains attractive to future buyers and renters, thereby supporting long-term profitability.

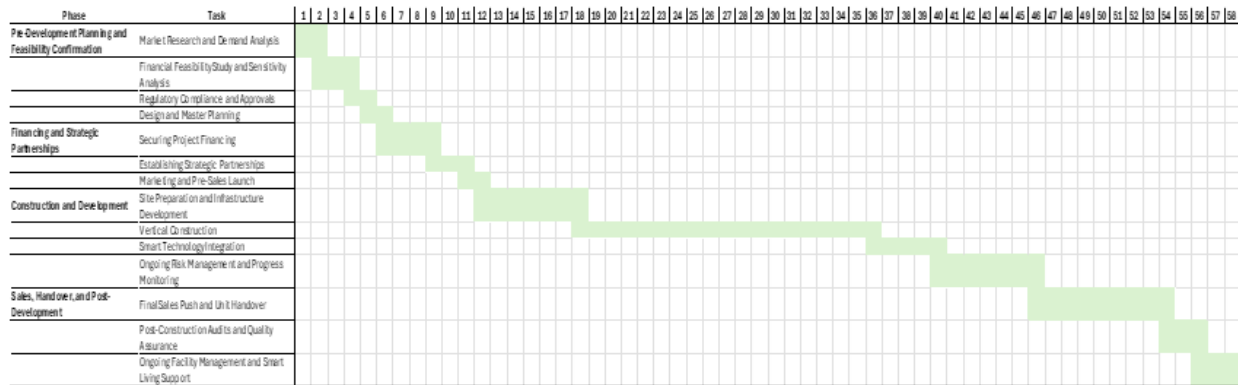


Figure 14. Implementation Development Plan

The Gantt chart illustrates the phased implementation plan for PT. XYZ’s real estate project, covering tasks from pre-development to post-development. It includes market research, financial planning, strategic partnerships, construction, and sales. Each phase is designed to ensure efficient execution, risk mitigation, and long-term profitability by aligning with feasibility studies, financial analysis, and market demands.

Research on real estate development projects highlights the importance of structured implementation plans and the incorporation of smart technologies to enhance market competitiveness. For instance, studies by (Beckers et al., 2013) emphasize the role of early-stage feasibility analysis in mitigating financial risks and improving project outcomes. By conducting thorough market research and sensitivity analysis, PT. XYZ aligns with these best practices, ensuring the project is both market-responsive and financially viable. Additionally, incorporating Monte Carlo simulations, as demonstrated by (Broman & Robèrt, 2017), allows developers to evaluate multiple scenarios and prepare for various financial outcomes, which helps in securing strategic partnerships and investment. The plan’s phased approach to construction ensures that quality and timeline adherence, as noted by (Lines et al., 2015), can significantly reduce cost overruns and delays, common issues in large-scale developments. The inclusion of smart living technologies, discussed by (Guisado-Fernández et al., 2019), is a differentiating factor that can enhance the appeal of PT. XYZ’s development. This approach aligns with consumer preferences for technology-integrated housing, particularly among Millennials and Gen Z, as noted in the market research. By focusing on a comprehensive post-development facility management strategy, PT. XYZ addresses concerns regarding long-term project viability and customer satisfaction, which are critical for maintaining property values and ensuring continued profitability.

CONCLUSION

The conclusions in this research show that PT XYZ's high-rise apartment and residential development in a secondary city in Indonesia represents a very promising investment opportunity. With strong financial prospects, including a positive NPV, high IRR, and a payback period of 4 years, the project is likely to remain profitable even under less favorable conditions. A comprehensive implementation plan, coupled with an effective risk management strategy and integration of smart living technologies, positions PT. XYZ for success in the emerging smart city market. The future contributions of this research include several important aspects. First, it provides a solid foundation for the development of similar projects in other secondary cities in Indonesia. By examining financial prospects and effective risk management strategies, the findings of this research can be adapted by other developers to evaluate the profit potential of housing and apartment projects in less developed areas with high growth potential.

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