

Optimizing Strategy for Property Development Plan Changes: A Multi-Criteria Decision-Making Approach Using AHP Methods (Case Study: Project Bumi Cipta 3 Jakarta)

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ABSTRACT: This study examines the optimization strategy of property development plan changes for Bumi Cipta 3 Jakarta, a project by PT Cipta Bangun Property, one of the largest property companies in Indonesia. The analysis uses the Analytic Hierarchy Process (AHP), a multi-criteria decision-making (MCDM) method. The project is motivated by significant post-pandemic shifts in office space demand within Jakarta's Central Business District. The study identifies four alternative development options: continuing with the office tower plan, or pivoting to an apartment, data center, or hospital. By interviewing key decision-makers and using the AHP method, the research evaluates financial and non-financial criteria, such as market attractiveness and site analysis. The findings suggest that the hospital alternative offers the highest potential in both financial returns and market alignment, followed by the data center and apartment projects. Strategic recommendations are provided to prioritize the hospital project while keeping the other alternatives in consideration for phased development, thus ensuring flexibility in response to future market conditions.

KEYWORDS: Multi-Criteria Decision-Making, AHP, Property Development, Post-Pandemic Office Project in Jakarta, Indonesian Property.

I. INTRODUCTION

The real estate sector has long been a cornerstone of economic development in urban areas, with the office space market playing a particularly crucial role in Central Business Districts (CBDs). However, the COVID-19 pandemic has triggered a profound transformation in this sector, affecting both demand and supply in unprecedented ways. McKinsey Global Institute¹ analysed that globally, businesses have shifted to remote working models, and hybrid work arrangements are becoming the new norm, leading to a steady level of office attendance that remains 30 percent lower than the standards observed before the pandemic. The desire for office space is anticipated to decrease by 13 percent in 2030 compared to the levels in 2019, considering the median city in the analysis. In a more pessimistic projection, the demand experiences a decline of 38 percent, specifically in the city most profoundly impacted.

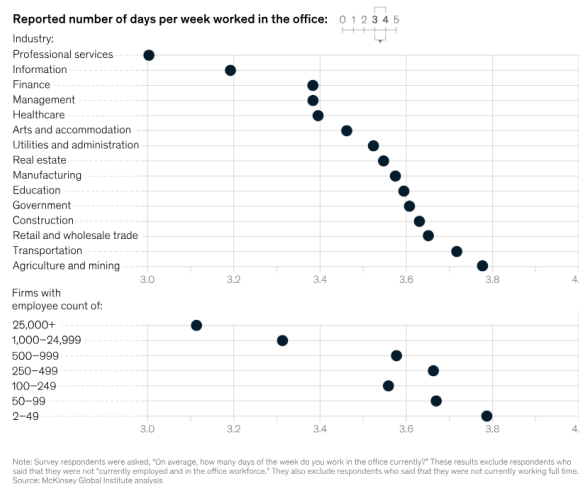


Figure 1. Office attendance in large firm in the knowledge economy after pandemic.

Source: McKinsey Global Institute Report, July 13, 2023

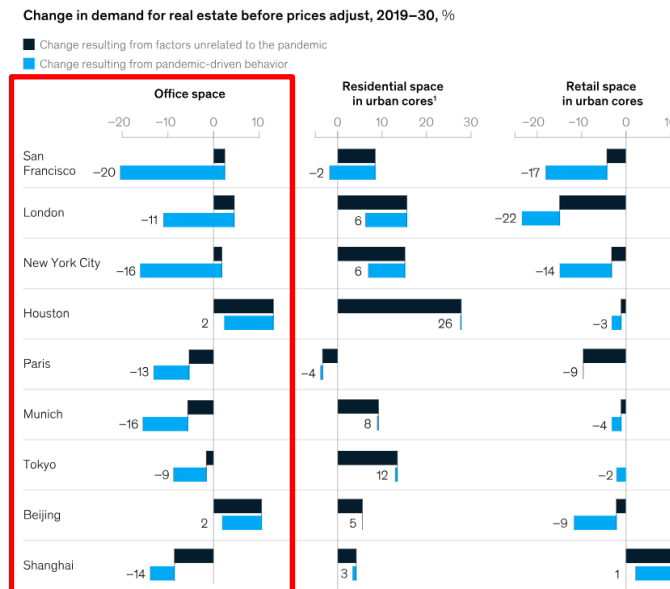


Figure 2. The falls in demand for office and retail space between 2019-2030 - in a moderate scenario.

Source: McKinsey Global Institute Report, July 13, 2023

Consequently, demand for office spaces has significantly declined, leaving many urban areas, including Jakarta, with an oversupply of office buildings and decreasing occupancy rates. This shift presents unique challenges for developers who had previously relied on steady demand for commercial real estate in metropolitan hubs.

In Jakarta, Indonesia's capital and economic center, the pandemic's effects have been particularly acute in its CBD. According to John Lang LaSalle in 1Q 2023 Jakarta Property Market Update, the demand for office space in Jakarta's Central Business District (CBD) has experienced a substantial downturn since the pandemic and still not recovered with the demand continues to elude the market. Historically, the area has been home to major commercial and financial institutions, making office space development a key focus for property developers. However, the decline in demand for office spaces in the post-pandemic era has forced many developers to reconsider their strategies, seeking alternative uses for prime land in the CBD to adapt to the changing market. This trend is mirrored in global cities where commercial real estate markets are struggling to recover to pre-pandemic levels.

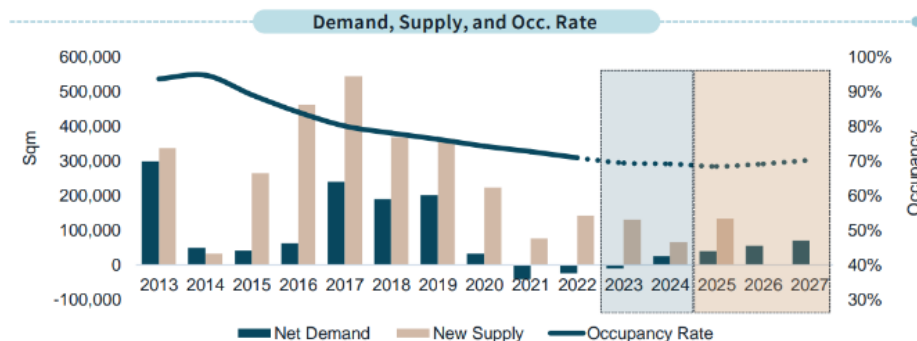


Figure 3. Five-year market outlook for office space in Jakarta CBD.

Source: 1Q 2023 Jakarta Property Market Update, John Lang LaSalle, April, 2023

One such development facing this challenge is Bumi Cipta 3 Jakarta, part of the Bumi Cipta Complex, a prestigious mixed-use project located in Jakarta's Golden Triangle. Initially planned as a high-end office tower, the project now faces a critical decision:

whether to continue with the original office tower plan or pivot to alternative uses that may better align with current market conditions. The changing dynamics of office space demand, along with the emergence of new opportunities in sectors like healthcare, residential, and digital infrastructure, necessitate a thorough reevaluation of the development strategy for Bumi Cipta 3.

The primary motivation behind this study is the need for PT Cipta Bangun Property to adapt to these new market realities by optimizing their development strategy. The research aims to identify the most viable alternative for the Bumi Cipta 3 project, using a structured, multi-criteria decision-making framework to evaluate different development options. This process will ensure that the project not only meets the company’s financial goals but also responds to evolving market demands in Jakarta’s real estate landscape.

By applying the Analytic Hierarchy Process (AHP), a well-established decision-making tool, the study evaluates four possible alternatives: maintaining the original plan of an office tower, or switching to an apartment, a data center, or a hospital. This research not only aims to guide PT Cipta Bangun Property in making an informed decision for Bumi Cipta 3 but also contributes to the broader discourse on adaptive real estate strategies in the post-pandemic era.

II. LITERATURE REVIEW

The Analytic Hierarchy Process (AHP), developed by Thomas L. Saaty (1980), is a structured decision-making methodology that breaks down complex problems into simpler hierarchical levels. In real estate project selection, AHP has proven particularly useful for balancing financial and non-financial criteria, ensuring a more holistic evaluation of potential projects. The process involves using pairwise comparisons to quantify decision-makers’ judgments, which are then aggregated to identify the most suitable project alternative.

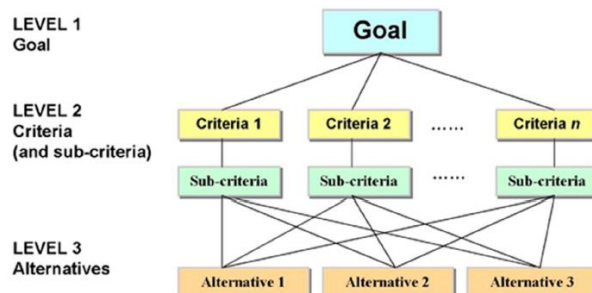


Figure 4. AHP Basic Principles
 Source: Saaty, T. L. (1980)

Velasquez and Hester (2013) emphasized the versatility of AHP in evaluating performance-related problems, particularly in areas such as resource management, corporate strategy, and public policy. AHP’s scalability and low data-intensive requirements make it a favored method in the real estate sector, where both qualitative and quantitative factors must be considered.

In the context of project portfolio management, AHP allows developers to align project choices with strategic objectives, taking into account financial metrics such as Internal Rate of Return (IRR) and qualitative factors such as market trends and site suitability. Guarini et al. (2018) argue that AHP is the best-suited method for evaluating real estate investments due to its ability to integrate mixed-type indicators and provide a clear prioritization of alternatives.

Mantogiannis and Katsigiannis (2020) applied AHP in the UK real estate market to evaluate post-pandemic investment strategies, focusing on healthcare facilities and residential projects as alternative investments. They demonstrated how AHP can help developers pivot in response to shifting market demands. Similarly, Ronyastra et al. (2015) explored the use of AHP and the PROMETHEE method to evaluate investment portfolios in Indonesia, emphasizing the importance of incorporating both financial returns and strategic adaptability in project selection.

The current study draws on these related works to apply AHP in the context of the Bumi Cipta 3 Jakarta project. By evaluating alternative development strategies—office tower, apartment, data center, and hospital—the study contributes to the growing body of literature on adaptive real estate strategies in the post-pandemic era. In particular, it leverages the findings of



Mantogiannis and Katsigiannis (2020) and Ronyastra et al. (2015), which emphasize the importance of flexibility and the inclusion of expert judgments in the decision-making process. This study aims to provide actionable insights for PT Cipta Bangun Property by recommending an optimal development strategy that balances financial returns with long-term market adaptability.

III. METHODS

This research employs a mixed-methods approach, integrating both qualitative and quantitative data. The primary method used in the study is the Analytic Hierarchy Process (AHP), which provides a structured framework for evaluating and prioritizing project alternatives based on multiple criteria. The research design follows these steps:

A. Data Collection

Develop Criteria for AHP Analysis:

Conducting a two stages in-dept interview and weight assessment with key-decision maker at the company.

Stage 1: Interview company key-decision makers to find the most important criteria and sub-criteria (of non-finance aspect) in selecting new projects in general with a few alternatives' projects limited with the given area of case study.

Stage 2: After collecting all data and define a selected Criteria and sub-Criteria, the company key decision makers will be asking to give weight to all the criterion with a Pairwise Comparisons Matrices. All of the Non-Finance aspect will also be weight compared with the Finance aspect as one criterion. (Appendix C)

Questionnaire with Expert at the Company on Alternatives:

Key decision makers were also asked to decide on few alternatives projects to be the most suitable option for the site.

Stage 3: To assess it further, we will have an expert from the company to judge all selected sub-criteria with the alternatives with another Pairwise Comparisons Matrices. The expert will be chosen from professionals that been working for the similar projects with at least 15 years of experiences. (Appendix D)

Financial Analysis Report

Stage 4: Financial performance was evaluated using internal company data. In this study, company experts considered the internal rate of return (IRR) to be the most important indicator for the company in financial modelling for real estate project selections. So, assessment of financial aspect will be done by comparing IRR of the alternatives. The IRR for each alternative will be calculated, normalized, and incorporated into the AHP model to provide a holistic view of each option's potential.

B. Data Analysis

Analytical Hierarchy Process (AHP)

The AHP method was used to rank the alternatives by assigning weights to each criterion based on expert input. Pairwise comparisons were conducted to prioritize criteria, and the AHP analysis was performed using an AHP template to calculate the relative importance of each alternative.

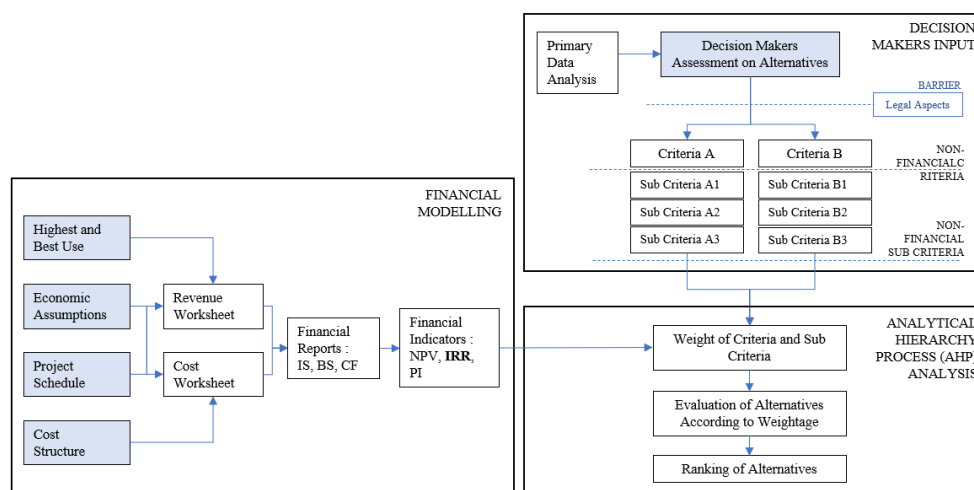


Figure 5. Research Design Workflow

Source: Author's Analysis



IV. RESULTS AND DISCUSSION

The analysis for this study is grounded in a thorough investigation that involved multiple steps to ensure a robust decision-making process. Initially, interviews were conducted with key decision-makers within the company to gather insights into the strategic priorities and preferences in selecting new project and select an alternative project for the Bumi Cipta 3 project case study.

A. Criteria Development

Table 1 and showing the findings from these interviews that highlighted two main criteria that consistently emerged as critical in the evaluation of new projects: Site Analysis and Market Attractiveness. These criteria not only stood out on their own but also effectively unified six sub-criteria that were repeatedly mentioned during the interviews. The aspect of the project consists of two main considerations: Financial and Non-Financial.

Table 1. The Criteria and Sub-Criteria Obtained From The Interviews.

No.	Criteria / Sub-Criteria	Designation
1	Site Analysis	Main Criteria 1
2	Site Accessibility	Sub-Criteria 1A
3	Surrounding Site Quality	Sub-Criteria 1B
4	Highest and Best Use	Sub-Criteria 1C
5	Market Attractiveness	Main Criteria 2
6	Market Trends	Sub-Criteria 2A
7	Product Marketability	Sub-Criteria 2B
8	Surrounding Competition	Sub-Criteria 2C

The decision-makers were also consulted the alternatives for replacing the office tower at Bumi Cipta 3. They considered four options: continuing with office towers, building an apartment tower, a data center, or a hospital as shown in Table 2. Each option offers unique benefits and aligns differently with the area’s strategic goals, impacting the project’s future direction.

Table 2. Selected Alternatives from Decision Makers input

No.	Selected Alternatives
1	Office Tower
2	Apartment
3	Data Center
4	Hospital

B. Decision Tree

The criteria for selecting the most suitable project are best explained using a decision tree, as shown in Figure 6. It begins with a legal check as the initial filter, followed by evaluations of non-financial factors like site analysis and market attractiveness. The final step assesses financial feasibility. This structured approach can be applied to all options for Bumi Cipta 3—office towers, an apartment tower, a data center, or a hospital—ensuring a thorough evaluation before a final decision.

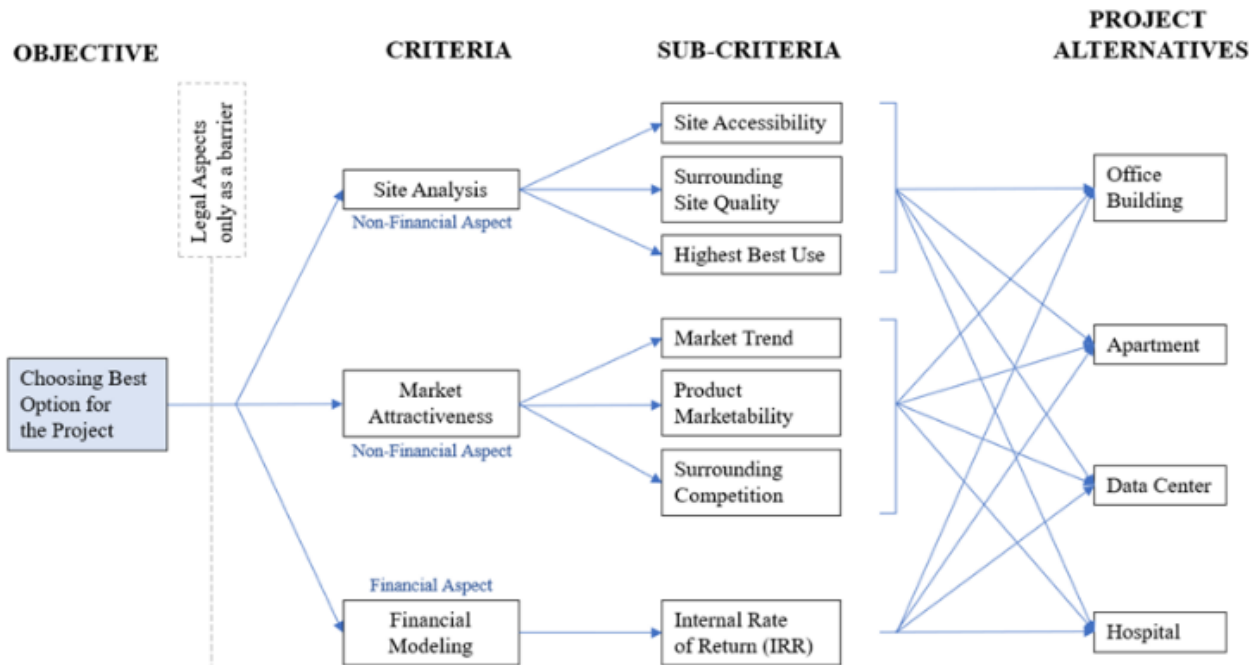


Figure 6. Decision Tree
Source: Author's Analysis

C. AHP Analysis

The AHP analysis then can be executed after the criteria and sub-criteria are obtained. The weights of such criteria and sub-criteria are obtained using pairwise comparison from several experts within the company. Table 3 and Table 4 explains the weight of each individual aspect and the criteria and sub-criteria for AHP analysis.

Table 3. The weight of each financial and non-financial aspects of The Project.

ASPECT	Weight
Finance	0,7269
Non-Finance	0,2731

Table 4. The weight for criteria and sub-criteria.

CRITERIA	Weight	Global Weight
Site Analysis	0,3480	
Site Accessibility	0,4449	0,1548
Surrounding Site Quality	0,3032	0,1055
Highest Best Use	0,2519	0,0876
Market Attractiveness	0,6520	
Market Trend	0,2743	0,1789
Product Marketability	0,5130	0,3345
Surrounding Competition	0,2126	0,1386
Total	1,0000	1,0000



The projects which are selected for the analysis are: (1) Office Building, (2) Apartment, (3) Data Center, (4) Hospital. Table 5 indicate the results of the AHP analysis for the three sub-criteria under both main criteria; the Site Analysis criterion: Site Accessibility, Surrounding Site Quality, and Highest Best Use. And the Market Attractiveness criterion: Market Trend, Product Marketability, and Surrounding Competition. These results help to evaluate the four project alternatives—Office Building, Apartment, Data Center, and Hospital—against these specific sub-criteria. The analysis involves calculating the alternative weights for each project based on their assigned weight for each sub-criterion.

On the site accessibility, all projects are assigned equal weight since for this study case all the location are the same. The result also show that Hospital project emerges as the most favourable option as an alternative project at the other two sub-criterion, indicating that it has the highest potential in terms of the quality of the surrounding site and the best use of the site. The Apartment project is the second most favourable option, followed by the Data Center and the Office Building.

On Table 5 indicates that the Hospital project consistently stands out, particularly for its alignment with current and future market trends, making it the most favourable option in the market trend sub-criteria. The Apartment project excels in terms of product marketability, indicating it is perceived as the most attractive offering for the market. Meanwhile, the Data Center is seen as the strongest contender when considering the surrounding competition, suggesting it would perform well in a competitive environment. Although the Office Building option is considered less favourable across these criteria, the insights from this analysis clearly indicate that the Hospital, Apartment, and Data Center projects each have unique strengths that could be leveraged depending on the strategic priorities for Bumi Cipta 3.

Table 6 and Table 7 present AHP analysis for the final score with both the non-financial and financial aspect to determine the overall scores for each project alternatives at Bumi Cipta 3.

Non-Financial Aspect: After combining all alternatives weight from the previous analysis, we can see that Hospital project is become the most favourable option with the highest non-finance final score. Indicating it aligns best with the non-financial criteria considered in this analysis.

Financial Aspect: IRR from each project need to be normalized for AHP analysis by dividing it with the biggest IRR of all alternatives (hospital IRR as the biggest on alternatives become 1,00). Then multiply it with financial weight to get the final score for all alternatives. We can see from the analysis that hospital project also leads in the financial aspect with the highest IRR, resulting in the highest financial final score. (Financial Data Report Summary of Alternatives can be seen on Appendix E)

Table 5. AHP Analysis for Sub-Criteria

SELECTED PROJECT	1A. Site Accesibility		
	Weight	Global Weight	Alternative Weight
	A	B	AxB = C1
Office Building	0,2500	0,3480	0,0870
Apartment	0,2500	0,3480	0,0870
Data Center	0,2500	0,3480	0,0870
Hospital	0,2500	0,3480	0,0870

SELECTED PROJECT	2A. Market Trend		
	Weight	Global Weight	Alternative Weight
	A	B	AxB = C4
Office Building	0,0908	0,6520	0,0592
Apartment	0,2267	0,6520	0,1478
Data Center	0,2566	0,6520	0,1673
Hospital	0,4259	0,6520	0,2777

SELECTED PROJECT	1B. Surrounding Site Quality		
	Weight	Global Weight	Alternative Weight
	A	B	AxB = C2
Office Building	0,2384	0,3480	0,0830
Apartment	0,2561	0,3480	0,0891
Data Center	0,1788	0,3480	0,0622
Hospital	0,3268	0,3480	0,1137

SELECTED PROJECT	2B. Product Marketability		
	Weight	Global Weight	Alternative Weight
	A	B	AxB = C5
Office Building	0,1666	0,6520	0,1086
Apartment	0,3687	0,6520	0,2404
Data Center	0,1839	0,6520	0,1199
Hospital	0,2808	0,6520	0,1831



SELECTED PROJECT	1C. Highest Best Use		
	Weight	Global Weight	Alternative Weight
	A	B	AxB = C3
Office Building	0,1381	0,3480	0,0481
Apartment	0,2750	0,3480	0,0957
Data Center	0,1910	0,3480	0,0665
Hospital	0,3960	0,3480	0,1378

SELECTED PROJECT	2C. Surrounding Competition		
	Weight	Global Weight	Alternative Weight
	A	B	AxB = C6
Office Building	0,1006	0,6520	0,0656
Apartment	0,2026	0,6520	0,1321
Data Center	0,3512	0,6520	0,2290
Hospital	0,3456	0,6520	0,2253

Table 6. Final Score for Non-Financial Aspect.

SELECTED PROJECT	Non-Finance		
	Total Alternative Weight	Non-Finance Weight	Non-Finance Final Score
	C1+C2+C3+C4+C5+C6 = A	B	AxB = C7
Office Building	0,4514	0,2731	0,1233
Apartment	0,7921	0,2731	0,2163
Data Center	0,7319	0,2731	0,1999
Hospital	1,0246	0,2731	0,2799

Table 7. Final Score for Financial Aspect

SELECTED PROJECT	Finance (IRR)			
	IRR	Normalized IRR	Finance Weight	Finance Final Score
	A	A' = A / Biggest IRR	B	A'xB = C8
Office Building	0,05	0,3333	0,7269	0,2423
Apartment	0,12	0,8000	0,7269	0,5815
Data Center	0,14	0,9333	0,7269	0,6784
Hospital	0,15	1,0000	0,7269	0,7269

Table 8. Final Score and Rank for each Alternatives.

SELECTED PROJECT	Non-Finance Final Score	Finance Final Score	Total Score	PROJECT RANK
	C7	C8	C7+C8	#
Office Building	0,1233	0,2423	0,3656	4
Apartment	0,2163	0,5815	0,7978	3
Data Center	0,1999	0,6784	0,8783	2
Hospital	0,2799	0,7269	1,0067	1

Table 8 provides the final evaluation of the four project alternatives—Office Building, Apartment, Data Center, and Hospital—by combining the non-financial and financial scores to determine the overall total score and rank each project accordingly. The overall analysis clearly favors the Hospital project in the top rank as the best alternative project for Bumi Cipta 3 with the highest total score of 1.0067, given its leading position in both non-financial and financial evaluations. The Data Center and Apartment projects are also viable options, albeit with lower scores. While the Office Building project as its initial plan, however, is the least attractive option based on this comprehensive assessment.



V. CONCLUSIONS

The comprehensive analysis for PT Cipta Bangun Property's Bumi Cipta 3 development evaluated four potential projects: Office Building, Apartment, Data Center, and Hospital, using both non-financial and financial criteria. The criteria included factors such as site analysis (accessibility, surrounding quality, highest and best use), market attractiveness (trends, marketability, competition), and financial performance (Internal Rate of Return - IRR).

The selection process involved interviews with key decision-makers and a structured questionnaire to ensure alignment with the company's experts. The Analytic Hierarchy Process (AHP) was used to prioritize these factors.

Results showed the Hospital project as the most suitable, excelling in non-financial aspects like market trends and site suitability, and offering the highest financial returns based on IRR. Although the Data Center and Apartment projects were also viable, especially in a phased approach, the office building was the least favorable.

There are few recommendations strategies for the company that aim to ensure the successful development and long-term value of the Bumi Cipta 3 project:

1. Prioritize the Hospital Project: Proceed with planning, design, and financing for a timely launch.
2. Phased Development Strategy: Consider the Data Center or Apartment projects in later phases for diversification.
3. Secure Financing and Partnerships: Leverage financial projections to secure financing and partner with healthcare providers.
4. Implement Robust Project Management: Establish a strong framework for risk management and quality control.
5. Comprehensive Marketing Strategy: Develop targeted marketing focusing on the hospital's facilities and strategic location.
6. Monitor Market Conditions: Stay adaptable to market shifts to maintain project viability.

REFERENCES

1. McKinsey Global Institute Report, July 13, 2023. "Global Economics Intelligence executive summary"
2. John Lang LaSalle in 1Q 2023 Jakarta Property Market Update (2023). "Seizing Opportunities on the Path to Recovery"
3. Velasquez, M., & Hester, P.T. (2013). "An Analysis of Multi-Criteria Decision-Making Methods." *International Journal of Operations Research*, 10(2), 56-66.
4. Saaty, T. L. (1980). *Analytic hierarchy process. planning, priority setting, resource allocation*. McGraw-Hill.
5. Yang, J. & Shi, P. (2002). *Applying Analytic Hierarchy Process in Firm's Overall Performance Evaluation: A Case Study in China*. *International Journal of Business*, 7(3), 234-246.
6. Mantogiannis, V. A., & Katsigiannis, F. A. (2020). Assessing Real Estate Investment Alternatives: A multi-criteria and multi-stakeholder decision aid tool. *International Journal of the Analytic Hierarchy Process*, 12(1). <https://doi.org/10.13033/ijahp.v12i1.702>
7. Ronyastra, I. M., Gunarta, I. K., & Ciptomulyono, U. (2015). A multi criteria decision analysis for Reinvestment Action Portfolio selection problem in an Indonesian real estate company. *Procedia Manufacturing*, 4, 558-567. <https://doi.org/10.1016/j.promfg.2015.11.076>
8. Guarini, M., Battisti, F., & Chiovitti, A. (2018). A methodology for the selection of multi-criteria decision analysis methods in real estate and Land Management Processes. *Sustainability*, 10(2), 507. <https://doi.org/10.3390/su10020507>
9. Taleai, M., Mansourian, A., (2008). "Using Delphi-AHP and Information Entropy for Prioritizing Planning Issues in Urban Planning." *Cities*, 25(1), 1-19.
10. Ginevičius, R., & Zubrecovas, V. (2009). Selection of the optimal real estate investment project basing on multiple criteria evaluation using stochastic dimensions. *Journal of Business Economics and Management*, 10(3), 229-238. <https://doi.org/10.3846/1611-1699.2009.10.261-270>
11. Geltner, D. M., Miller, N. G., Clayton, J., & Eichholtz, P. (2014). *Commercial real estate analysis and investments: Analysis and Investments*. Delmar Cengage Learning.
12. Brunelli, M. (2015). Introduction to the analytic hierarchy process. *SpringerBriefs in Operations Research*. <https://doi.org/10.1007/978-3-319-12502-2>



13. Goepel, Klaus D. (2013). *Implementing the Analytic Hierarchy Process as a Standard Method for Multi-Criteria Decision Making In Corporate Enterprises – A New AHP Excel Template with Multiple Inputs*, Proceedings of the International Symposium on the Analytic Hierarchy Process 2013, p 1 -10
14. Project Management Institute. (2017). *A guide to the Project Management Body of Knowledge: (PMBOK Guide) (6th ed.)*. Project Management Institute, Inc. pp. 33-35; pp. 11, 41; pp. 42-44

APPENDICES

Appendix A

List of Key-Decision Maker Participant for Interview

No.	Participant Initial	Position at the Company	Working Experience
1.	AE	Director of Finance	29 years
2.	ST	Operational Director	33 years
3.	AH	Project Director	32 years
4.	PWP	Senior General Manager of Business Development	22 years
5.	TW	General Manager of Business Development	30 years
6.	AR	General Manager of Marketing Division	30 years
7.	AN	General Manager of Bumi International (units)	19 years

Appendix B

List of Expert Participant from the Company

No.	Participant Initial	Position at the Company	Working Experience
1.	APA	Interior Design Coordinator	17 years
2.	FM	Project Architect Manager	19 years
3.	JT	Design Coordinator	16 years
4.	AL	Marketing & Tenancy Manager	21 years
5.	SG	Business Development Coordinator	17 years
6.	TD	Design Coordinator	16 years
7.	MGB	Strategic Development Manager	23 years
8.	AS	Project Coordinator	16 years
9.	SPP	Architect Coordinator	15 years
10.	BS	Manager of Sales	20 years
11.	QMA	Business Development Manager	18 years

Appendix C

Pairwise Comparison form for Key-Decision Makers (Stage 2)

CRITERIA

		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9			
Financial Aspect	I																			II	Non-Financial Aspect

Non-Financial Aspect

		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9			
Site Analysis	1																			2	Market Attractiveness



SUB-CRITERIA

Site Analysis		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9		
Site Accessibility	1A																		Surrounding Site Quality	1B
Site Accessibility	1A																		Highest Best Use	1C
Surrounding Site Quality	1B																		Highest Best Use	1C

Market

Attractiveness		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9		
Market Trend	2A																		Product Marketability	2B
Market Trend	2A																		Surrounding Competition	2C
Product Marketability	2B																		Surrounding Competition	2C

Instruction:

After conducting interviews with seven decision-makers at PT Cipta Bangun Property, two main criteria and six sub-criteria have been selected to represent the most important non-Finance aspects for the company when choosing a new project:

Main Criteria 1: Site Analysis (1)

Sub Criteria 1:

(1A) Accessibility: Easiness access to the site location

(1B) Surrounding Quality: Existing facility around the location that can have a direct impact to the project (e.g., mall, school/univ, hospital, located at CBD or near the beach, etc.).

(1C) Highest Best Use: The analysts result of best product that can be develop at the site location in terms of technicality and market.

Main Criteria 2: Market Attractiveness (2)

Sub-Criteria 2:

(2A) Market Trend: A market trend in property is anything that alters the market of property industry (e.g., investor or buyers project preferences in certain time frame or prediction in the future).

(2B) Product Marketability: Marketability is a measure of whether a product will appeal to buyers and sell at a certain price range to generate a profit (buyers purchasing power).

(2C) Surrounding Competition: Competitor in the same market segment within the surrounding area.

*(Finance and Legal Aspects is not included in the above criteria since they are considered mandatory and serve as initial barriers).

*(All of the “Non-Finance” aspect will also be weight at the end of the questionnaire compared with the “Finance” aspect as one criteria).

To add weight to the criteria on Project selected for the Analytical Hierarchy Process (AHP), please score your choice using the guideline below:

1 = Equal score

(Two elements contribute equally to the objective)

3 = Moderate score

(Experience and judgment slightly favor one element over another)



5 = Strong score

(Experience and judgment strongly favor one element over another)

7 = Very strong score

(One element is favored very strongly over another, its dominance is demonstrated in practice)

9 = Extreme score

(The evidence favoring one element over another is of the highest possible order of affirmation)

*(2,4,6,8 can be used to express intermediate values)

Appendix D

Pairwise Comparison form for Company Experts

EXPERT JUDGEMENT

SITE ANALYSIS

Sub Criteria 1A - Site Accessibility

		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9		
Office Building	P1																		P2	Apartment
Office Building	P1																		P3	Hospital
Office Building	P1																		P4	Data Center
Apartment	P2																		P3	Hospital
Apartment	P2																		P4	Data Center
Hospital	P3																		P4	Data Center

Sub Criteria 1B - Surrounding Site Quality

		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9		
Office Building	P1																		P2	Apartment
Office Building	P1																		P3	Hospital
Office Building	P1																		P4	Data Center
Apartment	P2																		P3	Hospital
Apartment	P2																		P4	Data Center
Hospital	P3																		P4	Data Center

Sub Criteria 1C - Highest Best Use

		9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9		
Office Building	P1																		P2	Apartment
Office Building	P1																		P3	Hospital
Office Building	P1																		P4	Data Center
Apartment	P2																		P3	Hospital
Apartment	P2																		P4	Data Center
Hospital	P3																		P4	Data Center



MARKET ATTRACTIVENESS

Sub Criteria 1A - Site Accessibility

9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9

Office Building	P1																	P2	Apartment
Office Building	P1																	P3	Hospital
Office Building	P1																	P4	Data Center
Apartment	P2																	P3	Hospital
Apartment	P2																	P4	Data Center
Hospital	P3																	P4	Data Center

Sub Criteria 1B - Surrounding Site Quality

9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9

Office Building	P1																	P2	Apartment
Office Building	P1																	P3	Hospital
Office Building	P1																	P4	Data Center
Apartment	P2																	P3	Hospital
Apartment	P2																	P4	Data Center
Hospital	P3																	P4	Data Center

Sub Criteria 1C - Highest Best Use

9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9

Office Building	P1																	P2	Apartment
Office Building	P1																	P3	Hospital
Office Building	P1																	P4	Data Center
Apartment	P2																	P3	Hospital
Apartment	P2																	P4	Data Center
Hospital	P3																	P4	Data Center

Instruction:

After conducting interviews with seven decision-makers at PT Cipta Bangun Property, six sub-criteria have been selected to represent the most important non-financial aspects for the company when choosing a new project.

As an Expert in the Company, you will be asked in this questionnaire to choose and score which Alternative Projects is the most suitable to be built on Bumi Cipta 3 project by comparing each project against the selected criteria above (36 questions).

Alternative projects selection for Bumi Cipta 3 (as selected by the key-decision makers):

- (P1) Project 1: Office Building
- (P2) Project 2: Apartment
- (P3) Project 3: Data Center
- (P4) Project 4: Hospital

To add weight to the criteria on Project selected for the Analytical Hierarchy Process (AHP), please score your choice using the guideline below:

1 = Equal score

(Two elements contribute equally to the objective)



3 = Moderate score

(Experience and judgment slightly favor one element over another)

5 = Strong score

(Experience and judgment strongly favor one element over another)

7 = Very strong score

(One element is favored very strongly over another, its dominance is demonstrated in practice)

9 = Extreme score

(The evidence favoring one element over another is of the highest possible order of affirmation)

*(2,4,6,8 can be used to express intermediate values)

Appendix E

Financial Data Report Summary of Alternatives

Alternatives Data	Project Alternatives for Bumi Cipta 3			
	Office Building (P1)	Apartment (P2)	Data Center (P3)	Hospital (P4)
Area Development (sqm)	10,693	10,693	10,693	10,693
Project GFA (sqm)	43,865	30,000	28,500	50,000
Initial Outlay (Rp. Bio)	1478,7	1127,1	2091,4	1758,2
IRR (%)	5	12	14	15