

An Integrated Multi-Aspect Feasibility Model for Healthcare Clinic Development: Evidence from Dental Clinic Investment in Indonesia

Dianti Moelya^{1*}, Tasya Aspiranti¹, Rachmat Suyanto¹

¹Bandung Islamic University

Jl. Tamansari No.20, Tamansari, Bandung City, West Java 40116, Indonesia

*Corresponding Email: asura1780@gmail.com

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ABSTRACT

Healthcare clinic development requires investment decisions that consider both financial and non-financial factors. This study develops and applies an integrated multi-aspect feasibility model to evaluate a proposed dental clinic investment in Bandung, Indonesia. A descriptive mixed-method approach was employed using primary data from interviews and observations and secondary data from official sources. Feasibility was assessed using an AHP-based weighted scoring approach within a Multi-Criteria Decision-Making (MCDM) framework, incorporating marketing, operational, human resource (HR), legal, environmental, and financial dimensions. The results indicate that all aspects are feasible to highly feasible, with scores of 4.4 (marketing), 4.2 (operational), 4.0 (HR), 4.2 (legal), 4.4 (environmental), and 4.5 (financial), resulting in an overall feasibility score of 4.29. Financial analysis further confirms project viability, with positive Net Present Value (NPV) across all scenarios, an Internal Rate of Return (IRR) of 14%–21%, exceeding the 9.9% cost of capital, and a Payback Period (PP) of four years. These findings demonstrate that the proposed integrated multi-aspect feasibility model provides a comprehensive and systematic framework for healthcare investment decision-making by integrating financial and non-financial considerations to support more informed and sustainable healthcare facility development.

Keywords: Decision-Making; Dental Clinic; Healthcare Investment; Multi-Criteria Decision-Making; Multi-Aspect Feasibility

JEL Classification: D81; G31; I11; M21

INTRODUCTION

The dental health service sector in Indonesia has experienced significant development as public awareness of the importance of oral health increases. This service includes promotive, preventive, curative, and rehabilitative aspects that are indispensable to maintaining the quality of life of people in various age groups (Altingöz et al., 2023; Pindobilowo et al., 2023). Dental clinics as primary health facilities play a strategic role in providing professional, affordable, and accessible dental health services (Akbar et al., 2020). The development of new dental clinics therefore requires careful investment planning because long-term sustainability depends not only on financial viability but also on market demand, operational readiness, regulatory compliance, environmental management, and the availability of qualified human resources (HR). Consequently, comprehensive feasibility assessment has become an essential prerequisite for reducing investment risk and supporting sustainable healthcare facility development.

In the city of Bandung, the increase in the need for dental health services is influenced by population growth, increasing education levels, and rapid urbanization. Lengkong District is one of the areas with demographic characteristics that are relevant for the development of new dental health facilities. This area has a high population density, good transportation access, and an increasing level of health awareness as people's lifestyles change. However, although there are several dental clinics in the region, there are still gaps in terms of capacity, service coverage, and quality of service, especially in terms of convenience, quality management, and environmental management (Kevin et al., 2022; Maulana et al., 2023; Suryatiningsih et al., 2022). Therefore, it is important to conduct a feasibility study to ensure that the establishment of a new dental health facility can truly meet the needs of the community and operate sustainably.

Previous studies have extensively examined the feasibility of healthcare facility investments; however, most have primarily emphasized financial evaluation while giving limited attention to other critical dimensions, such as marketing, operational readiness, HR, legal compliance, and environmental sustainability. Suliswanto et al. (2023) analyzed the feasibility of building a teaching hospital in Papua using Net Present Value (NPV), Benefit-Cost Ratio (BCR), Internal Rate of Return (IRR), and sensitivity analysis indicators, but did not include operational aspects, HR, legality, and the environment. A similar approach was taken by Khoirunnisa and Bastian (2022) in assessing the financial feasibility of the development of Nur Hidayah Hospital into a type C hospital, but the study was limited to financial projections without considering other feasibility dimensions. The study by Prayogi and Lubis (2025) also only uses a cost-benefit approach in assessing hospital construction in Legok District, and still has limitations both in the scope of interviews and in non-financial assessments. To summarize the characteristics and limitations of previous studies, Table 1 presents a comparison of representative healthcare feasibility research relevant to the present study.

Table 1. Previous Research

No	Author	Objective	Method	Limitations
1	Suliswanto et al. (2023)	To analyze the financial feasibility of building a teaching hospital at Cenderawasih University	Financial analysis using NPV, BCR, IRR, BEP, and sensitivity analysis	Focused only on financial aspects; did not assess non-financial dimensions (HR, legal, environmental, etc.)

2	Khoirunnisa & Bastian (2022)	To determine the financial feasibility of developing Nur Hidayah Hospital into a Type C hospital	Qualitative descriptive method, case study, secondary financial data; NPV, IRR, and PP analysis	Assessed financial feasibility only; did not include legal, HR, or operational aspects
3	Prayogi & Lubis (2025)	To evaluate the economic feasibility of hospital construction in Legok District	Financial analysis (NPV, IRR, PP, BCR) + stakeholder interviews	Limited financial projection and narrow interview scope

The comparison in [Table 1](#) indicates that previous healthcare feasibility studies have predominantly emphasized financial analysis while paying limited attention to the integration of non-financial dimensions. Moreover, no previous study has proposed and applied an integrated multi-aspect feasibility model for dental clinic investment in an urban Indonesian context. This gap highlights the need for a comprehensive evaluation framework that simultaneously considers marketing, operational, HR, legal, environmental, and financial aspects to support more robust healthcare investment decision-making.

This study aims to develop and apply an integrated multi-aspect feasibility model to evaluate the proposed XYZ Dental Clinic in Lengkong District, Bandung City. The model integrates marketing, operational, HR, legal, environmental, and financial dimensions into a unified evaluation framework using primary and secondary data to provide a comprehensive basis for healthcare investment decision-making ([Fahim et al., 2021](#); [Pardede et al., 2022](#)). The contribution of this research is theoretical and practical. Academically, this study expands the literature related to the feasibility study of health facilities with a multidisciplinary approach that is rarely applied in dental clinic studies. Practically, the results of this study can be a reference for investors, clinical planners, and other stakeholders in making strategic decisions regarding the establishment of modern, sustainable, and highly competitive dental health facilities in urban areas of Indonesia.

LITERATURE REVIEW

Feasibility Study for Healthcare Facility Investment

A feasibility study is a systematic evaluation conducted before implementing a business project or investment to determine whether the proposed project is viable and sustainable. It provides a comprehensive basis for decision-making by assessing the project's potential benefits, risks, and resource requirements before significant investments are made ([Lainawa et al., 2024](#); [Ray & Siahaan, 2022](#)). Unlike preliminary business planning, a feasibility study examines various dimensions that influence project success, including market conditions, operational readiness, managerial capability, financial performance, and external environmental factors ([Kalangi et al., 2022](#); [Lainawa et al., 2022](#)). Consequently, it has become an essential instrument for reducing investment uncertainty and improving strategic decision-making.

In the healthcare sector, feasibility studies require a broader perspective because healthcare facilities operate within highly regulated environments while simultaneously pursuing service quality, patient safety, operational efficiency, and financial sustainability ([Jack et al., 2024](#)). Healthcare investments differ from conventional business

investments because they must balance economic objectives with regulatory compliance and social responsibilities (Hassani et al., 2022). Therefore, the feasibility of healthcare facilities cannot be evaluated solely through financial indicators, but should also consider operational capability, HR, legal compliance, environmental management, and market demand to ensure sustainable healthcare service delivery.

Previous studies have emphasized that healthcare investment decisions should be supported by comprehensive feasibility assessments that integrate both financial and non-financial dimensions. These dimensions should not be viewed as independent evaluation criteria, but rather as interrelated components that collectively determine the long-term viability of healthcare facilities. For example, strong market demand alone cannot ensure project success without adequate operational capability, qualified HR, regulatory compliance, environmental responsibility, and financial sustainability. Accordingly, a comprehensive feasibility framework provides a more robust theoretical basis for evaluating healthcare investments than isolated financial appraisal.

Integrated Multi-Aspect Feasibility Assessment

Traditional feasibility studies have predominantly focused on financial performance as the primary basis for investment decision-making. Financial indicators such as NPV, IRR, and Payback Period (PP) are widely used to evaluate investment profitability and capital recovery (Dipura & Soediantono, 2022). Although these indicators provide important information regarding financial viability, they do not adequately capture other critical factors that determine the long-term sustainability of healthcare facilities. Several studies have therefore argued that relying solely on financial analysis may lead to incomplete investment decisions, particularly in complex sectors such as healthcare where operational capability, regulatory compliance, and service quality significantly influence organizational performance.

To address these limitations, recent studies have proposed a multi-aspect feasibility perspective that integrates both financial and non-financial dimensions into a comprehensive evaluation framework. In healthcare facilities, marketing feasibility assesses market demand and competitive positioning; operational feasibility evaluates infrastructure readiness and service processes; HR feasibility examines workforce adequacy and competency; legal feasibility ensures compliance with healthcare regulations; environmental feasibility focuses on sustainable waste management and environmental responsibility (Agunyo et al., 2019); while financial feasibility determines the project's economic viability. These dimensions are interrelated, and weaknesses in one aspect may reduce the effectiveness and sustainability of the entire healthcare investment.

Accordingly, an integrated multi-aspect feasibility assessment provides a more comprehensive basis for evaluating healthcare investments than conventional single-dimension approaches. The six dimensions adopted in this study represent the principal determinants of healthcare facility feasibility identified across previous literature, encompassing market viability, operational capability, organizational readiness, regulatory compliance, environmental sustainability, and financial performance. Evaluating these dimensions simultaneously enables decision-makers to obtain a holistic understanding of project readiness while recognizing the interdependence among the various aspects influencing investment success.

Weighted Scoring for Integrated Feasibility Assessment

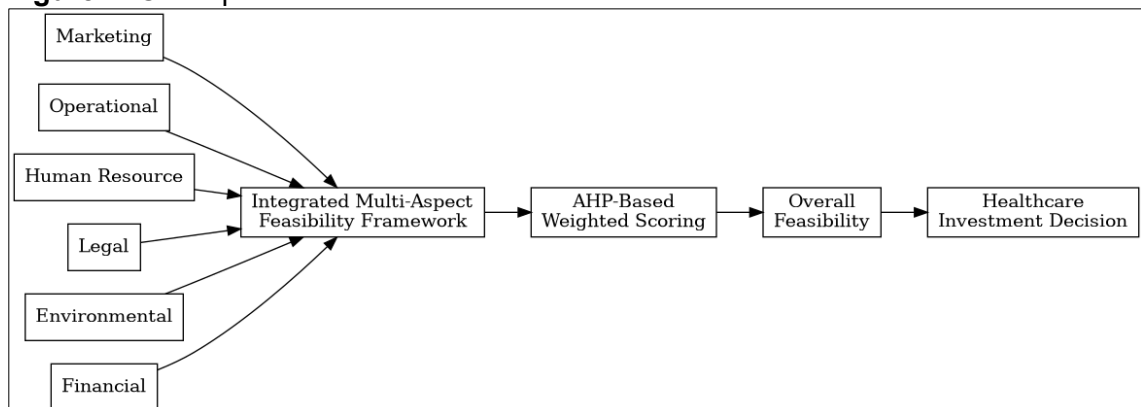
Because healthcare investment feasibility involves multiple interrelated dimensions, an evaluation approach capable of integrating diverse qualitative and quantitative criteria is

required. Individual feasibility dimensions differ not only in their relative importance but also in their measurement scales, making direct comparison difficult. Consequently, Multi-Criteria Decision-Making (MCDM) approaches have been widely adopted to combine multiple evaluation criteria into a systematic and transparent decision-making framework (Madanchian & Taherdoost, 2023).

Among various MCDM approaches, weighted scoring is one of the most practical and transparent techniques for integrating qualitative and quantitative assessments. The method converts the performance of each evaluation criterion into standardized scores and combines them according to predetermined weights, allowing different feasibility dimensions to be compared within a common evaluation scale. Compared with conventional financial analysis, weighted scoring provides a more comprehensive representation of project feasibility because it captures both measurable financial outcomes and strategic non-financial considerations that influence long-term project sustainability.

The effectiveness of a weighted scoring model depends on the appropriate determination of criterion weights because each feasibility dimension contributes differently to healthcare investment decisions. Among various weighting techniques, the Analytical Hierarchy Process (AHP) has been widely adopted because it systematically converts expert judgments into quantitative priorities while assessing the consistency of those judgments (Pramandika & Siahaan, 2020). Therefore, this study employs AHP to determine the relative importance of each feasibility aspect before calculating the overall feasibility score using a weighted scoring approach. This combination enables the integration of marketing, operational, HR, legal, environmental, and financial dimensions into a single comprehensive feasibility index, providing a more objective and systematic basis for healthcare investment decision-making.

Figure 1. Conceptual Framework



Based on the theoretical considerations, the present study applies the proposed integrated feasibility framework to evaluate the investment feasibility of a dental clinic using empirical evidence from Bandung, Indonesia. The conceptual framework in Figure 1 illustrates that healthcare investment feasibility is evaluated through an integrated multi-aspect approach comprising six dimensions: marketing, operational, HR, legal, environmental, and financial. These dimensions are synthesized using an AHP-based weighted scoring approach within an MCDM framework to generate an overall feasibility assessment, which serves as the basis for healthcare investment decision-making. This framework reflects the theoretical foundation of the study by emphasizing that comprehensive investment evaluation should simultaneously consider financial and non-financial dimensions.

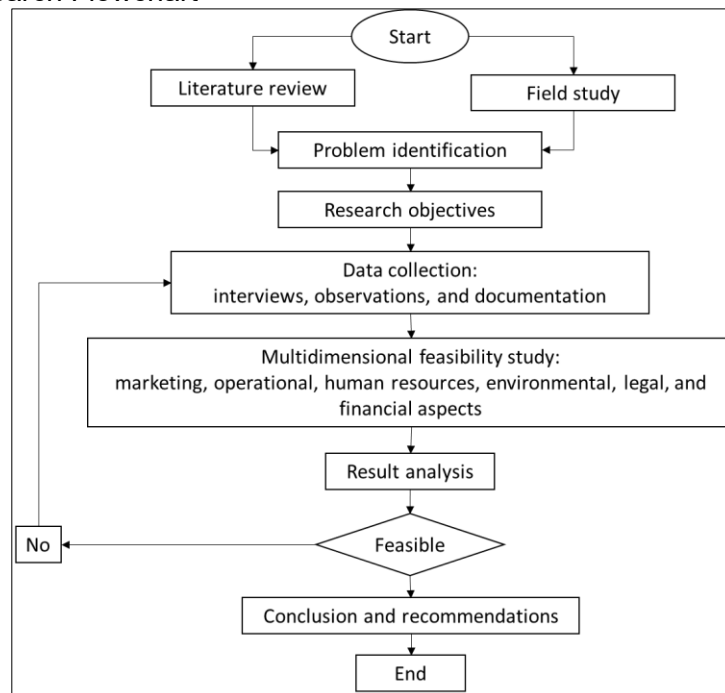
RESEARCH METHOD

Research Design and Study Object

This study uses a descriptive approach with a combination of quantitative and qualitative methods to evaluate the feasibility of the construction of health facilities, especially dental clinics. This approach was chosen to provide a comprehensive overview of empirical conditions while enabling a structured and measurable evaluation of feasibility levels through defined indicators. The research stages begin with a literature study and a field study to identify problems and formulate research objectives. Furthermore, data collection was carried out through interviews, observations, and documentation, which were then analyzed using a multidimensional feasibility framework supported by a structured decision-making approach.

The overall research procedure adopted in this study is illustrated in Figure 2. The framework summarizes the sequential stages of the research, beginning with problem identification and data collection, followed by the integrated feasibility assessment using weighted scoring and financial analysis, and concluding with the formulation of investment feasibility recommendations.

Figure 2. Research Flowchart



The object of this study is the plan to build the XYZ Clinic located in the city of Bandung, West Java. The selection of this object is based on the high market potential and the gap between the need and availability of dental health services in the region. The evaluation process involves domain experts to ensure that the assessment reflects real-world conditions and professional judgment.

Integrated Multi-Aspect Feasibility Framework

The feasibility analysis is carried out in a multidimensional manner by covering six main aspects, namely marketing, operational, HR, legality, environment, and finance. The marketing aspect is analyzed through the identification of market potential, service

needs, and competitive conditions. The operational aspect includes evaluation of locations, facilities, and readiness of the service process. The HR aspect assesses the number and competence of the workforce. The legality aspect is related to the fulfillment of applicable licensing and regulations. The environmental aspect assesses the readiness of impact management, especially medical waste. Meanwhile, the financial aspect is analyzed using NPV, IRR, and PP indicators to determine investment feasibility.

Data Collection

The data used in this study consisted of primary and secondary data. Primary data were obtained through interviews with experts and direct observation at the research site, while secondary data were obtained from official publications such as the Central Agency of Statistics (BPS), institutional documents, and relevant literature sources. The use of multiple data sources ensures data triangulation and enhances the validity of the analysis.

AHP-Based Weighted Scoring Procedure

To integrate the results of the analysis from all aspects, this study employs a structured weighted scoring method within an MCDM framework (Lau et al., 2021). The determination of weights for each aspect is conducted using the AHP based on expert judgment (see Table 2) (Asa et al., 2024). A panel of experts consisting of healthcare practitioners, clinic management professionals, and academic researchers performed pairwise comparisons to assess the relative importance of each aspect. The consistency of these judgments was tested using the Consistency Ratio (CR), with all values below the acceptable threshold ($CR < 0.1$) indicating reliable and consistent evaluations (Asaye et al., 2022). Each aspect is then assessed using a Likert scale (1–5) by the same group of experts through an independent evaluation process. The final score for each aspect is calculated as the average of all expert ratings, minimizing individual bias and ensuring objectivity (Aminudin et al., 2024).

Table 2. Integrated Feasibility Assessment Using AHP-Based Weighted Scoring

No	Feasibility Aspect	Weight (%)	Score (1–5)	Weighted Score
1	Marketing	20		
2	Operational	20		
3	HR	15		
4	Legal	15		
5	Environmental	10		
6	Financial	20		
Total		100		

To evaluate the reliability of the expert assessments, this study employed the Intraclass Correlation Coefficient (ICC), which measures the degree of agreement among multiple raters evaluating the same criteria. A high ICC value ($ICC > 0.75$) indicates that the experts provided consistent judgments, thereby increasing the reliability of the criterion weights used in the subsequent weighted scoring analysis.

The experts were selected using purposive sampling based on their professional expertise and direct experience in healthcare management, dental practice, finance, and business development. Their diverse backgrounds were intended to ensure that the weighting process reflected multiple professional perspectives relevant to healthcare investment decision-making.

The resulting weighted score represents the overall feasibility level of the proposed investment, where higher scores indicate greater overall project feasibility after simultaneously considering all evaluation dimensions. The overall feasibility value is calculated as the weighted sum of each aspect's score, which can be expressed as:

$$FS = \sum(w_i \times s_i)$$

where w_i represents the weight of each aspect and s_i represents the corresponding score. This formulation enables a quantitative and integrated evaluation of project feasibility. To evaluate the robustness of the model, a sensitivity analysis was conducted by adjusting the weights of key aspects within a range of $\pm 10\text{--}20\%$. The results show that the overall feasibility classification remains stable under different weighting scenarios, indicating that the model is robust and reliable.

RESULTS

Marketing Aspects

The marketing aspect is an important component of the feasibility study because it is directly related to the project's ability to generate demand and revenue sustainability. In the context of healthcare, especially dental clinics, marketing analysis includes identifying market potential, service needs, and levels of competition that affect market entry opportunities. Based on demographic analysis and service needs, the Bandung City area, especially Lengkong District, has great market potential with a high population and increasing public awareness of dental health. This shows that there is a demand for services that continues to grow and has not been fully met. Projected market potential indicates an increase in the number of patients in the next few years, which indicates positive growth opportunities for clinics. The projection data is presented in Table 3.

Table 3. Projection of Clinical Market Potential XYZ

Year	Total Population of Lengkong District	Population Density (population/km ²)	Area (km ²)	SKDC Patient Target (people)	SKDC Market Share (%)
2025	123,500	12,900	9.57	5,000	4.05
2026	125,717	13,130	9.57	6,500	5.17
2027	127,992	13,370	9.57	8,450	6.60
2028	130,326	13,620	9.57	10,985	8.43
2029	132,720	13,860	9.57	14,281	10.76

Table 3 shows a trend of gradual increase in market potential, which indicates that the demand for dental health services has a sustainable outlook. This condition is the basis that, from the demand side, the construction of clinics has a fairly strong opportunity. In addition, competitor analysis was conducted to understand the level of competition in the research area. Data on the number and classification of competitors are presented in Tables 4 and 5.

Table 4. Number of Competitors by Sub-district

No	Districts	Number of Competitor Clinics ($\leq 5\text{km}$)
1	Lengkong	10
2	Regol	4
3	Sumur Bandung	6
4	Astanaanyar	13
5	Bandung Kidul	5

6	Bandung Wetan	9
7	Kiaracandong	12
Total		59

Table 5. Classification of Competitors by Type of Service

No	Types of Clinic Services	Number of Clinics	Percentage (%)
1	General Dentist Clinics / Practices	38	64.4%
2	Specialist Clinics / Practices	11	18.6%
3	Main Clinic / Dental Service Center	10	17%
Total		59	100%

The results of the analysis in Tables 4 and 5 show that even though there are a number of dental clinics that have been operating, there are still opportunities for service differentiation, both in terms of service quality, technology used, and patient experience. This provides space for the clinic to be developed to gain a competitive position in the market. Based on all these indicators, an evaluation was carried out using the weighted scoring method to determine the level of feasibility of the marketing aspect. The results of the assessment are presented in Table 6.

Table 6. Evaluation of Marketing Management Aspects Scoring

Criteria Assessed		Description of Analysis Results	Score (1–5)
1	Market Potential & Population Size	The coverage area of 7 sub-districts within a radius of 5 km with a population of $\pm$ 495,304 people is a potential market base.	5
2	Competition Level & Market Position	There are 59 clinics within a radius of 5 km, the majority of which are public services, so there are still opportunities for service differentiation.	4
3	Segmentation, Targeting, and Positioning	Market segmentation is clear: students/adolescents, families, professional workers, aestheticians, the elderly, and preventive patients with a rational proportion of the characteristics of the region.	5
4	Location Accessibility & Market Reach	The strategic location in Lengkong District, is in the center of urban activity with access distance of 2-4 km from most of the target areas.	4
5	Potential Market Share & Demand Projections	Projections of absolute market share and potential growth in the number of patients and revenue show an upward trend in several scenarios.	4
Average Final Score			4.4 (Very Feasible)

Based on the scoring results in Table 6, the marketing aspect is in the very feasible category, which shows that there is a match between the market potential, the level of service needs, and the clinic's ability to compete in the market. This value indicates that from a marketing perspective, the project has a great opportunity to acquire and retain patients. Overall, the marketing aspect can be concluded to be feasible to develop, supported by the increasing market potential, high service needs, and differentiation opportunities in the face of competitors. This shows that in terms of demand and market opportunities, the construction of SKDC Dental Clinic has sustainable prospects.

Operational Aspects

The operational aspect is an important component of the feasibility study because it relates to the technical readiness and ability of the system to carry out services effectively and efficiently. In the context of dental clinics, this aspect includes the selection of locations, facility layouts, and service processes that directly affect service quality and patient satisfaction. Based on the results of the analysis, the location of the XYZ Clinic is in a strategic area in Lengkong District, Bandung City, with good accessibility and close to the center of community activities. This location is considered to support easy patient access and has good potential in reaching a predetermined target market. In terms of facilities and layout, the clinic is designed by paying attention to health service standards, including the provision of medical service rooms, waiting rooms, and other supporting facilities. In addition, the clinic's operational flow is systematically arranged to improve service efficiency and minimize patient waiting time. The operational flow is presented in Figure 3.

Figure 3. Operational Flow of XYZ Clinic

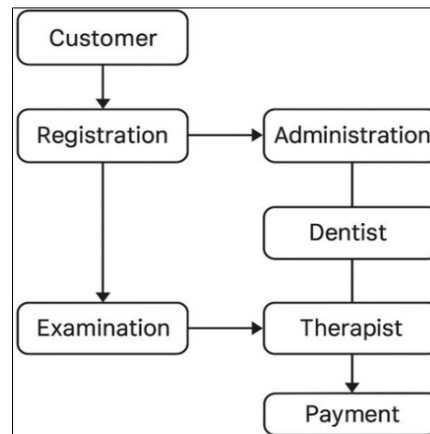


Figure 3 shows the stages of service starting from patient registration, the examination process, medical procedures, to the administrative stage and follow-up services. This structured flow is an indicator that the clinic's operational system has been designed to support service efficiency and improve the overall patient experience. Furthermore, the evaluation of operational efficiency and performance is presented in Table 7.

Table 7. Evaluation of Operational Efficiency and Performance of Clinic XYZ

Criteria Assessed		Evaluation Description	Score (1–5)
1	Location and Accessibility	The location is in a strategic area, easy to reach from the service coverage area with good transportation access.	4
2	Readiness of Facilities and Infrastructure	There are clinic buildings, examination rooms, waiting rooms, supporting facilities, and adequate utilities.	5
3	Service Facility Standards	Service facilities are in accordance with the standards of dental health services and the needs of the type of services to be provided.	4
4	Patient Service Flow and Operational Efficiency	The service flow has been structured clearly, simply, efficiently, and supports the smooth flow of patient service.	4

5	Operational Support Readiness	Supported by the readiness of operational personnel, work support systems, and the potential to increase service capacity.	4
Average Final Score			4.2 (Very Feasible)

Table 7 shows that the clinic's operational process has been designed by considering the effectiveness of service flows and optimal resource utilization. This is an indicator that from the operational side, the clinic has the readiness to provide efficient and quality services. Based on the results of the evaluation using the weighted scoring method, the operational aspect is in the category of feasible to very feasible, which reflects the readiness of facilities, locations, and service systems to support clinic operations. Overall, the operational aspect can be concluded to be feasible to develop, supported by a strategic location, adequate facilities, and an efficient and structured service flow. This shows that the clinic has good technical readiness to carry out operational activities effectively and sustainably.

Human Resources (HR) Aspect

The HR aspect is a crucial factor in the feasibility study because it directly affects the quality of service, operational effectiveness, and sustainability of organizational performance. In health services, especially dental clinics, the competence of medical personnel and the HR management system are the main determinants in ensuring service quality and patient satisfaction. Based on the results of the analysis, the labor needs at Clinic XYZ have been planned according to the type of services provided and the projected workload. The composition of the workforce includes medical and non-medical personnel who have a clear role in supporting the clinic's operations. The match between the number of manpower and the need for services indicates that the clinic has adequate capacity to carry out operations effectively. In addition, the HR management system that includes remuneration, incentives, and labor retention mechanisms has been designed to increase work motivation and maintain a competent workforce. This approach plays an important role in maintaining productivity and service quality in a sustainable manner. The results of the analysis of the overall condition of HR are presented in Table 8.

Table 8. HR Feasibility Analysis

Indicator		Description	Assessment Result
1	Workforce adequacy	Suitability of the number of workers	Adequate
2	Workforce competency	Workforce competency level	Appropriate
3	HR management system	HR management system	Well-structured
4	Remuneration & incentives	Compensation and incentive system	Competitive
5	Productivity & performance	HR performance and productivity	Good
Overall Assessment		Overall Evaluation	Feasible

Table 8 shows that from the various indicators analyzed, the HR aspect is in good condition, both in terms of labor adequacy, competence, and management systems. This indicates that the clinic's HR have been able to support operations and maintain optimal service quality. To strengthen the results of the analysis, a quantitative evaluation was carried out using the weighted scoring method. The results of the assessment of the HR aspect are presented in Table 9.

Table 9. Evaluation of Clinical HR Aspect Scoring

Assessment Criteria		Evaluation Description	Score (1–5)
1	Adequacy of the Number of HR	The availability of medical personnel, support personnel, and administrative personnel according to the needs of clinic services.	4
2	HR Qualifications and Competencies	Have dentists and support staff with qualifications in accordance with clinical service standards and health regulations.	4
3	Workload Suitability	The division of tasks, working hours, and distribution of responsibilities has been arranged logically and proportionately.	4
4	Remuneration and Welfare System	There are compensation systems, incentives, and reward schemes that support HR motivation and retention.	4
5	Readiness for HR Operational Implementation	Readiness to carry out operational tasks, work coordination, and HR management support is going well.	4
Average Final Score			4.0 (Feasible)

The scoring results in Table 9 show that the HR aspect is in the feasible category (score 4), which reflects that all indicators assessed have met the feasibility standards. This value shows that the readiness of HR is not only supported by the number and competence of the workforce, but also by an effective management system. Overall, the HR aspect can be concluded to be feasible to be developed, supported by the suitability of labor needs, a good management system, and the results of quantitative evaluations that show an adequate level of feasibility. This shows that in terms of HR, the clinic has a strong foundation to support operations effectively and sustainably.

Legality Aspects

The legality aspect is a crucial component in the feasibility study, especially in the health sector which has strict regulations. Compliance with laws and regulations and operational licensing is the main requirement to ensure business sustainability and minimize legal risks that can hinder clinic operations. Based on the results of the analysis, XYZ Clinic has met the basic requirements for establishment and operations in accordance with applicable regulations in the health sector. Fulfillment of legality aspects includes business licensing, completeness of operational documents, and conformity with standards set by the government. Data related to the completeness of legality documents is presented in Table 10.

Table 10. Completeness of Legality and Clinic Licensing Documents

No.	Types of Legality / Licensing Documents	Issuing Agency / Legal Basis	Ownership Status	Supporting Description/Evidence
1	Primary Clinic Operating Permit	Bandung City Health Office (Permenkes No. 9 Year 2014)	In possession	Permit number: ... / Year ...

2	Business Identification Number (NIB)	Ministry of Investment / OSS	In possession	Registered on behalf of XYZ Clinic
3	Taxpayer Identification Number (NPWP)	Directorate General of Taxes	In possession	Actively used for official transactions
4	Dentist Registration Certificate (STR)	Indonesian Medical Council	In possession	STR for life (drg. Wait, drg. Anger, drg. Zayyana)
5	Dentist Practice License (SIP)	Bandung City Health Office	In possession	Valid according to the clinic's operational permit period
6	STR and SIP Dental and Oral Therapist	Health Office / Ministry of Health of the Republic of Indonesia	In possession	STR is active for life
7	Building Approval (PBG) / IMB	Spatial Planning and Building Service	In the process of updating	Old documents are still valid
8	Environmental Permit/PPL	Bandung City Environment Agency	In possession	Including B3 Waste TPS permits
9	Deed of Establishment and Decree of the Ministry of Law and Human Rights	Notary & Ministry of Law and Human Rights of the Republic of Indonesia	In possession	Officially registered as a business entity
10	Proof of Clinic Accreditation Registration	Ministry of Health / FKTP Accreditation Institution	In the preparation process	Waiting for the field verification stage

Table 10 shows that all required legality documents have been met, both in terms of operational licensing and other administrative aspects. This indicates that the clinic has a strong legal basis to carry out operational activities officially. To strengthen the analysis, a quantitative evaluation was carried out using the weighted scoring method. The results of the assessment of legality aspects are presented in Table 11.

Table 11. Evaluation of Clinical Legality Aspects Scoring

Assessment Criteria		Evaluation Description	Score (1–5)
1	Formal Business and Legal Entity Status	The status of a business entity is clear and has a valid legal basis as a health service provider.	5
2	Clinical and Operational Licensing	The completeness of the clinic's operational permit is prepared in accordance with the provisions of applicable regulations.	4

3	Compliance with Health Regulations & Service Standards	Refers to health regulatory standards regarding facilities, medical personnel, and clinic operations.	4
4	Administrative & Tax Compliance	Have complete legal administration and conformity of tax documents as a health service entity.	4
5	Legal Risk Management & Ongoing Compliance	There is a commitment to legal risk management through readiness to fulfill legal requirements on an ongoing basis.	4
Average Final Score			4.2 (Very Feasible)

The scoring results in Table 11 showed that the legality aspect obtained a score of 4.2, which was included in the very feasible category. This value indicates that all legality indicators have been optimally met, so that legal risks that may arise can be minimized. The high value in the legality aspect also indicates that the clinic not only meets administrative requirements, but also complies with the applicable regulatory standards in the health sector. This is an important factor in ensuring operational sustainability and increasing public trust in the services provided. Overall, the legality aspect can be concluded to be very feasible, supported by the completeness of the licensing documents and the results of quantitative evaluations that show a high level of compliance with regulations. This shows that from a legal point of view, Klinik XYZ has excellent readiness to operate legally and sustainably.

Environmental Aspects

Environmental aspects are an important component of feasibility studies, especially in healthcare facilities that produce medical waste. Improper waste management has the potential to have a negative impact on the environment and public health, so a management system that is in accordance with applicable standards and regulations is needed. The results of the analysis of the waste management system of the XYZ Clinic are presented in Table 12.

Table 12. Identification of XYZ Clinical Waste

	Waste Type	Source of Waste	Handling Method	Final Disposal Method	Compliance
1	Infectious waste	Medical procedures	Segregation using color-coded containers	Processed by licensed third party	Compliant
2	Sharps waste	Needles, dental instruments	Stored in safety boxes	Processed by licensed third party	Compliant
3	Chemical waste	Dental materials, disinfectant	Temporary storage in sealed containers	Specialized hazardous waste treatment	Compliant
4	Non-medical waste	Administrative & daily waste	Standard waste separation	Municipal waste management	Compliant
5	Liquid waste	Clinical wastewater	Pre-treatment before disposal	Wastewater system	Compliant
Overall System					Feasible

Table 12 shows that the waste generated has been classified by type and handled using appropriate methods, from sorting, temporary storage, to final treatment through a licensed third party. This system indicates that waste management has been designed to minimize the risk of environmental pollution and meet medical waste management standards. Furthermore, to assess the feasibility level of environmental aspects quantitatively, an evaluation was carried out using the weighted scoring method. The results of the assessment are presented in Table 13.

Table 13. Evaluation of Clinical Environmental Aspect Scoring

Assessment Criteria		Evaluation Description	Score (1–5)
1	Medical and Non-Medical Waste Management System	There is a medical waste management plan according to health standards and clear waste separation.	5
2	Hygiene, Sanitation, and Hygiene of the Clinic	The clinic environment is designed to meet hygiene, hygiene, and sanitary standards of health services.	4
3	Environmental Safety & Ambient Comfort	The clinic's operations pay attention to environmental safety and minimize potential disturbances to the surrounding environment.	4
4	Environmental Risk Control	Have commitments and procedures in preventing environmental impacts that may arise from clinic service activities.	4
5	Compliance with Environmental Regulations	Refers to the environmental provisions, guidelines, and regulations that apply in clinic operations.	5
Average Final Score			4.4 (Very Feasible)

The scoring results in Table 13 showed that the environmental aspect obtained a score of 4.4, which is included in the very feasible category. This reflects the clinic's readiness to manage environmental impacts professionally and sustainably. Thus, a scoring value of 4.4 shows that environmental aspects are not an obstacle in the development of the clinic, but are one of the supporting factors in ensuring operational sustainability and compliance with environmental regulations.

Financial Aspects

The financial aspect is the main component of the feasibility study because it is the basis for determining whether an investment project is able to provide benefits and is feasible to be realized. In this study, financial analysis was carried out comprehensively through initial investment evaluation, revenue projections, and financial feasibility analysis using several key indicators. Based on the results of the analysis, the initial investment needs of XYZ Clinic include investment costs (CAPEX) and operational costs (OPEX) planned to support the clinic's operational activities. In addition, revenue projections are compiled based on the estimated number of patients and the type of services offered. Data related to revenue projections are presented in Table 14.

Table 14. Clinical Revenue Projections

Year to	Number of Patients	Average Rate (Rp)	Income (Rp)
1	3,650	300,000.00	1,095,000,000
2	3,942	300,000.00	1,182,600,000
3	4,257	300,000.00	1,277,100,000
4	4,597	300,000.00	1,379,100,000

5	4,965	300,000.00	1,489,500,000
Total	21,411		6,423,300,000

Table 14 shows that clinics have the potential to increase revenue year over year, as the number of patients grows and the services provided are optimized. This is an early indicator that financially, the clinic has good prospects. Furthermore, financial analysis was carried out using three scenarios, namely pessimistic, ideal, and optimistic, to measure sensitivity to changes in market conditions. The results of the analysis on the three scenarios are presented in Table 15.

Table 15. Comparison of Financial Analysis Results in Three Scenarios

Scenario	Pessimistic	Ideal	Optimistic
IRR	14%	17%	21%
NPV	181,679,616	353,626,999	532,004,143
PP	4 Years	4 Years	4 Years
KING	4%	8%	12%

The results of the analysis in Table 15 show that in all scenarios, the financial feasibility indicator gives positive results, where the NPV is positive, the IRR is higher than the cost of capital, the PP is faster than the life of the project, and the Return on Investment (ROI) shows a good level of profit. This shows that the investment made is able to provide profitable returns and is relatively safe against various possible conditions. To strengthen the results of the analysis, a quantitative evaluation was carried out using the weighted scoring method. The results of the assessment of financial aspects are presented in Table 16.

Table 16. Evaluation of Clinical Financial Aspects Scoring

Assessment Criteria	Eligibility Standards	Results	Score (1-5)
1 Net Present Value (NPV)	NPV > 0 is considered feasible	All NPV scenarios are positive	5
2 Internal Rate of Return (IRR)	IRR > COC (9.9%)	14% – 21% (higher than COC)	5
3 Payback Period (PP)	PP < project life (5 years)	PP = 4 years	4
4 Return on Investment (ROI)	Positive and increased ROI	4% – 12%	4
Average Score			4.5 (Very Feasible)

The scoring results in Table 16 showed that the financial aspect obtained a score of 4.5, which is included in the very feasible category. This value shows that all financial indicators analyzed have met the eligibility criteria optimally. Overall, the financial aspect can be concluded to be very feasible to develop, supported by positive revenue projections, strong financial feasibility indicators, and quantitative evaluation results that show a high level of feasibility. This shows that the investment in the development of XYZ Clinic has favorable and sustainable prospects.

Overall Eligibility Analysis

The overall feasibility analysis is the integration stage of all aspects that have been analyzed, namely marketing, operational, HR, legal, environmental, and financial aspects. This approach aims to provide a comprehensive overview of the feasibility level of the development of XYZ Clinic as a whole, so that it can be used as a basis for

investment decision-making. The results of the integration of the assessment of all aspects using the weighted scoring method are presented in Table 17.

Table 17. Overall Score Analysis of Clinical Feasibility Study Aspects

Eligibility Aspects		Weight (%)	Score (1-5)	Value (Weight × Score)	Category
1	Marketing Management	20%	4.4	0.88	Very Feasible
2	Operational Management	20%	4.2	0.84	Very Feasible
3	HR	15%	4.0	0.60	Feasible
4	Legality / Legal	15%	4.2	0.63	Very Feasible
5	Environment (PPL)	10%	4.4	0.44	Very Feasible
6	Finance	20%	4.5	0.90	Very Feasible
Total Final Score		100%		4.29	Very Feasible

The results of the analysis in Table 17 showed that the overall score obtained was 4.29, which was included in the very feasible category. This value reflects that all aspects analyzed have met the eligibility criteria with a high level of achievement. The integration value of 4.29 also shows that the multi-aspect feasibility model used in this study is able to provide a comprehensive and measurable evaluation of an investment project in the health sector. This approach not only assesses feasibility partially, but also considers the interconnectedness between aspects in determining the overall success of the project. Overall, the construction of the XYZ Clinic can be concluded to be very feasible to realize, with the potential to operate effectively, profitably, and sustainably. These results show that the integration of market, operational, HR, legal, environmental, and financial aspects has resulted in a solid feasibility model that can be used as a basis for investment decision-making in the healthcare sector.

DISCUSSION

Integrated Multi-Aspect Feasibility Assessment

The findings demonstrate that healthcare facility investment should be evaluated using a multidimensional perspective rather than relying solely on financial performance. The integrated feasibility assessment produced an overall score of 4.29, indicating that the proposed dental clinic is highly feasible from marketing, operational, HR, legal, environmental, and financial perspectives. These findings support the argument that successful healthcare investment depends not only on financial viability but also on organizational readiness, regulatory compliance, and sustainable operational capability. This result is consistent with previous studies emphasizing that healthcare investments require comprehensive evaluation frameworks capable of integrating multiple decision dimensions rather than focusing exclusively on economic performance (Hassani et al., 2022; Jack et al., 2024; van Straten et al., 2021). Moreover, the application of MCDM and AHP provides a systematic mechanism for integrating qualitative and quantitative considerations into a single feasibility assessment (Madanchian & Taherdoost, 2023; Taherdoost & Madanchian, 2023).

Unlike previous healthcare feasibility studies that primarily focused on financial indicators such as NPV, IRR, BCR, and PP, the present study demonstrates that marketing potential, operational readiness, HR capability, legal compliance, and environmental management collectively influence investment feasibility. Earlier studies by Khoirunnisa & Bastian (2022), Prayogi & Lubis (2025), and Suliswanto et al. (2023) mainly evaluated financial feasibility, whereas the proposed model integrates six complementary dimensions into a unified evaluation framework. Consequently, this study addresses the

research gap identified in previous literature by providing a more comprehensive assessment that reflects the complexity of healthcare facility investment decisions.

Theoretical and Practical Implications

From a theoretical perspective, this study extends the conventional feasibility study framework by integrating financial and non-financial dimensions using an AHP-based weighted scoring approach. The proposed model demonstrates that healthcare investment feasibility represents a multidimensional decision problem in which marketing attractiveness, operational capability, HR readiness, legal compliance, environmental responsibility, and financial performance interact to determine overall project viability. This finding is consistent with previous literature suggesting that integrated decision-making approaches provide a more robust basis for evaluating complex investment projects (Asa et al., 2024; Ozsahin et al., 2021; Pramandika & Siahaan, 2020). Therefore, the proposed framework contributes to the literature by offering a transparent and systematic model that can support healthcare investment evaluation beyond conventional financial appraisal.

From a practical perspective, the proposed integrated feasibility model provides decision support for investors, healthcare managers, and policymakers during the planning stage of healthcare facility development. By simultaneously evaluating six interrelated feasibility dimensions, stakeholders can identify potential strengths and weaknesses before substantial investment decisions are made. Nevertheless, this study is limited to a single dental clinic case in Bandung, which may restrict the generalizability of the findings. Future studies are encouraged to validate the proposed framework across different healthcare facilities and geographical settings while incorporating broader expert participation and additional decision criteria to further improve the robustness of the model.

CONCLUSION

This study developed and applied an integrated multi-aspect feasibility model to evaluate the proposed XYZ Dental Clinic in Bandung, Indonesia. Unlike conventional feasibility studies that primarily emphasize financial performance, the proposed model integrates marketing, operational, HR, legal, environmental, and financial dimensions into a unified evaluation framework for healthcare investment. The findings indicate that the proposed investment is highly feasible, with all six dimensions achieving feasible to highly feasible ratings and an overall weighted feasibility score of 4.29. The financial analysis further supports the investment decision, as reflected by positive NPV across all scenarios, an IRR ranging from 14% to 21%, exceeding the 9.9% cost of capital, and a PP of four years. These findings indicate that the proposed clinic is supported not only by favorable financial performance but also by sufficient market potential, operational readiness, qualified HR, regulatory compliance, and environmental preparedness.

The findings also demonstrate that healthcare investment decisions should not rely solely on financial indicators, as the long-term feasibility of healthcare facilities depends on the combined performance of multiple interrelated dimensions. By integrating financial and non-financial considerations into a single evaluation framework, the proposed model provides a more comprehensive basis for assessing healthcare facility investments than conventional financial appraisal alone. Therefore, this study contributes to the feasibility study literature by demonstrating the application of an integrated multi-aspect assessment framework supported by an AHP-based weighted scoring approach. From a practical perspective, the proposed model may serve as a reference for investors, healthcare managers, and policymakers in evaluating healthcare

facility investments and supporting more informed planning and investment decision-making.

LIMITATION

This study has several limitations. First, the proposed integrated feasibility model was validated using a single case study of a dental clinic in Bandung, Indonesia, which may limit the generalizability of the findings to other healthcare facilities and geographical contexts. Second, several assessment results were derived from expert judgment using an AHP-based weighted scoring approach, which may introduce subjective bias despite the application of consistency and reliability tests. Third, the financial feasibility analysis was based on projected market demand and investment assumptions that may change over time due to economic conditions, healthcare regulations, and market dynamics. Therefore, future research is encouraged to validate the proposed model across different types of healthcare facilities and geographical settings, involve a larger and more diverse panel of experts, and incorporate additional decision criteria and longitudinal data to further enhance the robustness, generalizability, and practical applicability of the proposed framework.

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DECLARATION OF CONFLICTING INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this paper. The authors have no financial, professional, or personal relationships that could have influenced the work reported in this study.

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ABOUT THE AUTHOR(S)

1st Author

Dianti Mulya is a graduate student in the Master of Management program at the Faculty of Economics and Business, Universitas Islam Bandung. She holds a background in healthcare practice and is currently working as a dental health practitioner in Bandung, Indonesia. Her academic interests focus on healthcare management, service quality, and investment feasibility in health facilities. As an emerging researcher, she is actively engaged in integrating practical healthcare experience with management science approaches.

Email: asura1780@gmail.com

2nd Author

Tasya Aspiranti is a Professor in the Department of Management at the Faculty of Economics and Business, Universitas Islam Bandung. She obtained her advanced degrees in management and has extensive experience in teaching, research, and academic supervision. Her research interests primarily focus on human resource management, organizational behavior, and strategic management. She has published numerous scientific articles in national and international journals and is actively involved in academic and professional development activities.

ORCID ID: <https://orcid.org/0000-0002-7831-1939>

3rd Author

Rachmat Suyanto is a lecturer in the Department of Management at the Faculty of Economics and Business, Universitas Islam Bandung. He has an academic background in management and is also actively involved as a healthcare practitioner in Bandung, Indonesia. His areas of interest include healthcare management, service operations, and applied management practices. He contributes to both academic teaching and practical implementation in the healthcare sector.