

A Multi-Criteria Approach to Assessing the Revival of Heritage Through Adaptive Reuse: The Case Study of Fagbewesa's House in Osogbo, Osun State Nigeria

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Abstract

Heritage buildings often become obsolete in their original functions, leading to vacancy and deterioration. Adaptive reuse emerges as a vital strategy for conserving these structures, providing new life and utility while preventing their demolition. This approach supports sustainable heritage conservation by preserving both the tangible and intangible values of the original buildings, enhancing the resilience of building materials, and minimizing waste and time. The decision-making criteria for adaptive reuse encompass several factors critical to sustainable development, including economic, environmental, social, architectural, ownership structure, and structural considerations. Various Multi-Criteria Decision-Making (MCDM) methods have been developed to facilitate cultural heritage conservation processes. This research presents an assessment model designed to assist in determining appropriate new uses through the application of the Analytic Hierarchy Process (AHP). The decision-making software utilized in this study was Expert Choice 11. Ojo Fagbewesa's Family House serves as the case study for this research. By employing AHP with input from diverse stakeholders, including experts and residents, a compatible use of the building as a community hub is proposed and substantiated by the research methodology.

Keywords: Adaptive reuse, heritage building, multiple criteria decision-making, AHP

INTRODUCTION

The term “heritage” as defined by Osasona (2015) [1] refers to something that is inherited legally and acquired by virtue of birth, a collection of objects and things that define a person's heritage, past, or overall identity. Therefore, architectural heritage more precisely refers to the collection of

constructed buildings that serve as a cultural marker for a people, showcasing their experience (in terms of styles, materials, and skills), especially within a historical context. Heritage represents the lifestyles developed by a community and transmitted through generations, encompassing traditions, practices, locations, artifacts, artistic expressions, and values [2].

Heritage buildings are recognized for their cultural or symbolic importance within a community [3]. Heritage buildings serve as vital legacy from the past, shaping what we live with today and what we will pass on to future generations [4].

In Nigeria specifically, heritage assets encompass a diverse range of buildings that reflect the country's historical and cultural significance passed down from previous generations. The significance of cultural heritage is immense; it plays a crucial role in research,

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education, tourism, economics, history, and the arts (Blessing, 2016) [5]. However, rapid urbanization poses risks of decay or extinction for many cultural heritage features. Thus, the conservation of these assets is a pressing global issue. According to research, these structures represent one of the most significant forms of material culture in any society, highlighting their importance in shaping local identity and collective memory. By preserving these heritage buildings, communities not only honor their past but also ensure that future generations can connect with their cultural heritage [6].

The adaptive reuse of heritage buildings has emerged as a crucial strategy for conserving these structures in urban environments, particularly in ancient cities like Osogbo, Osun State, Nigeria. Adaptive reuse involves modifying buildings to suit new uses while retaining key historical elements. It offers a sustainable alternative to demolition or neglect [7].

Cantel (2005) [8] defines adaptive re-use as a new use-finding process for a building, as “developing new uses for the economically viable old buildings with structural use potential” and can be seen as a component of the rehabilitation process. The researcher defines adaptive reuse as discovering new suitable activities that respect form, character, structure and historic integrity and often entail alterations to a place. Adaptive re-use solves the needs of communities [9] maintaining their historical significance and cultural value. As a result, this topic has been widely studied in various fields, such as architecture, urban planning, and real estate, exploring its challenges, opportunities, and impact and stated that adaptive reuse is a way to save a neglected building that might otherwise be demolished.

This paper aims to provide and adopt a framework for the adaptive reuse of Ojo Fagbewesa’s family house by assessing its cultural, historical, and architectural values. By evaluating the building’s condition and significance, this study seeks to identify the most compatible alternative uses that honor its heritage while meeting modern needs. The objectives include developing a decision-making tool based on expert and local perspectives regarding potential adaptive reuse options. The research will employ a structured approach to assess various criteria for adaptive reuse, including historical significance, architectural integrity, cultural value, economic potential, and community engagement. Cumulative responses from experts and locals will be analyzed to provide insights into the most suitable uses for the building. Ultimately, this study highlights the importance of integrating community input.

FAGBEWESA’S HOUSE

The Ojo Samuel Fagbewesa Family House, located at No. 2, Fagbewesa Street in Osogbo, Osun State, Nigeria, is a significant architectural relic that embodies the Afro-Brazilian style. Constructed in the early 1930s, this 70.76 square meters building stands as a testament to the cultural and historical dynamics of its time. Its fire brick walls and stone foundation not only reflect the architectural practices of the era but also symbolize familial stability and social prominence within the community.

Historical Background

The house is notable for being the first multi-story building in Osogbo, originally designed to accommodate the complex dynamics of a large family. According to the owner’s grandson, who provided insights into its history, the building was home to his grandfather, who immigrated from Ife and married three wives. Each wife occupied a section of the ground floor, while children lived on the first floor. The patriarch resided on the top floor, which featured a large sitting area along with two bedrooms. Currently, however, only the ground floor is utilized – primarily for storage – reflecting a stark contrast to its original purpose.

Architectural Significance

The architectural features of Fagbewesa’s House exemplify key characteristics of Afro-Brazilian architecture. The design includes a centrally located passageway (passagio) with rooms arranged on either side. Traditional construction methods are evident in the use of burnt brick for robust walls and

sand-cement plaster for finishing. The house also incorporates hardwood timber for flooring, stairs, balustrades, door and window frames, and roof trusses. Decorative elements adorn the windows and doors, enhancing their aesthetic appeal.

Despite its current state of neglect, experts believe that Fagbewesa's House possesses significant potential for adaptive reuse. The building's robust structure could be modernized to meet contemporary needs without compromising its historical integrity. For instance, while modern amenities, such as wardrobes and ensuite bathrooms may not fit seamlessly into the existing spatial configurations – given that many bedrooms are around 9 square meters with low headroom—the building's overall strength suggests it could endure further use or renovation.

Cultural Context

The significance of Fagbewesa's House extends beyond its physical structure; it is intertwined with the cultural heritage of Osogbo. As noted by Osasona (2015) [1], historical significance is often derived from a building's association with pivotal events or developments within a community. In this case, Fagbewesa's House marks an important chapter in Osogbo's architectural evolution as it reflects the socio-cultural influences brought by Afro-Brazilian settlers.

However, like many heritage buildings in Nigeria, Fagbewesa's House faces threats from modernization and urban development pressures. As communities evolve and new architectural trends emerge, culturally significant structures often become overlooked or neglected. This trend raises concerns about losing tangible connections to history and identity.

Adaptive Reuse Potential

The adaptive reuse of heritage buildings represents a vital strategy for urban regeneration, allowing cities to preserve their historical narratives while adapting to contemporary needs. Through thoughtful planning and community engagement, these projects can transform neglected structures into dynamic spaces that enhance the cultural fabric of urban environments, demonstrating the enduring value of heritage in a rapidly changing world [10].

This process involves repurposing existing structures for new uses without compromising their historical significance. The adaptive reuse potential of the Ojo Fagbewesa's house.

1. Cultural and historical significance.
2. Social and Community identity.
3. Architectural context.
4. Economic viability.
5. Structural assessment.
6. Location.
7. Material sustainability.
8. Environmental sustainability.

Considering the above potential, the Fagbewesa's House could be transformed into a multifunctional space that honors its heritage while serving contemporary purposes thereby revitalizing interest in local history. The potential for revitalization not only underscores the value of heritage conservation but also promotes a sustainable approach to urban development that honors past narratives while embracing future possibilities.

MULTICRITERIA EVALUATION FRAMEWORK (MCDM)

Adaptive reuse efforts globally can be guided by several comprehensive frameworks that address various aspects of the process, ensuring sustainability and efficiency. These frameworks incorporate different strategies, evaluation methods, and lifecycle processes that facilitate the transformation of historic structures into functional spaces relevant to contemporary times, Circular Building Adaptability Framework, Multi-criteria evaluation framework, strategic foresight framework and lifecycle framework model.

However, this study utilizes the Multi criteria evaluation framework majorly because it emphasizes the intrinsic value of heritage assets, facilitating a participatory decision-making process. According to Nocca et al. (2024) [11] it employs various methods to evaluate multidimensional impacts, guiding stakeholders in selecting preferable transformation scenarios for historic sites and spaces [12].

Multicriteria decision making models are focused on organizing and resolving issues involving multiple and varied criteria. It includes all methods available to assist individuals in making decisions that align with their capabilities when multiple criteria are in conflict (Yaolin, 2006 [13]; Nocca et al., 2024) [11]. Decisions for urban heritage conservation are being made by different parties every day. By their nature, these decision makers need to consider complex criteria, such as integrity, reversibility, degree of intervention, financial benefits, reliability, loading posed on infrastructure, and influence to residence nearby. In most cases, these criteria compete. This makes the decision-making process difficult, particularly when many criteria are involved.

According to Hebatu-Allah et al. [14] and Morkūnaitė et al. [15], using immovable cultural heritage for modern objectives is a complicated design process with many criteria and principles. MCDM can assist in bringing this wide range of factors together and emphasized that it offers a more transparent and effective procedure for choosing amongst design possibilities.

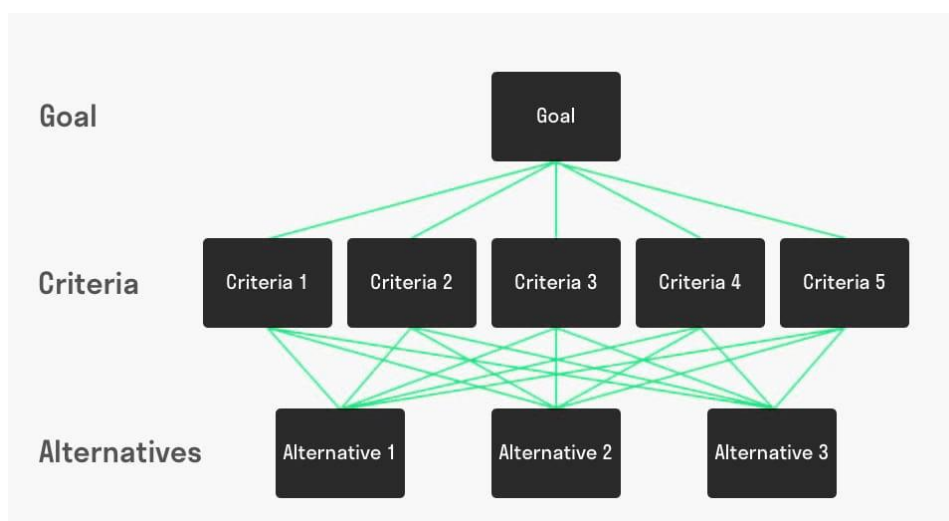


Figure 1. Analytic Hierarchy Process model (Source: <https://toolshero.com/decision-making/analytic-hierarchy-process/>).

Researchers reported that several Multi-Criteria Decision-Making Criteria (MCDM) tools have been developed for choosing the optimal probable options (Figure 1). Each tool has its own characteristics in finding the best alternatives. The Analytic Hierarchy Process (AHP), that was developed by Professor Thomas Saaty in the late 1970s, has become arguably the most used MCDM tool till date. The majority of MCDM methods mainly include three common aspects (Vehbi et al., 2021) [16].

- i. Identifying the alternatives and criteria: In accordance with the project's primary purpose, it is necessary to identify alternatives for selection and criteria for decision-making.
- ii. The relative weighting of the criteria: it is crucial to define the degree to which the criteria influence the ultimate choice by determining the relationship between the criteria and the objectives.
- iii. An assessment of the alternatives in relation to the specified criteria.

The selection of appropriate new uses for heritage buildings involves a multi-faceted approach, primarily guided by various criteria that ensure the preservation of their cultural and historical

significance. The most used criteria include economic viability, environmental impact, social relevance, legislative compliance, and architectural integrity. These criteria are essential for maintaining heritage values while adapting to contemporary needs. They are as follows

Economic viability, environmental impact, social relevance, legislative compliance, architectural integrity. The new use should promote sustainability by minimizing waste and utilizing existing materials, thereby reducing the carbon footprint (Vehbi et al., 2021) [16].

After conducting a literature review on the potential criteria for adaptive reuse, the researcher found that numerous scholars have contributed to this field, including Vehbi et al. (2021) [16]. The primary criteria for this study were identified through a questionnaire survey and interviews with professionals and key personnel from the Ministry of Urban Planning in Osun State, along with a synthesis of the criteria reviewed by other researchers. The identified criteria and their sub-criteria are presented below.

1. Cultural Value (C 1)

Sub Criteria

- i. Cultural significance.
- ii. Artistic value and Craftmanship.
- iii. Potential for the building to serve as a venue for local festivals, visitation from foreign guests during festivals and so on.
- iv. Historical value.

2. Community Impact (C 2)

Sub Criteria

- i. Community acceptance and engagement.
- ii. Social value.
- iii. Job creation.

3. Multi-Generational Ownership Structure (C 3)

- i. Consensus and decision making.
- ii. Respecting family traditions.
- iii. Potential for conflict.

4. Economic Viability (C 4)

- i. Tourism potential: potential to attract tourists in and around the world.
- ii. Profitability.
- iii. Initial investment and maintenance cost.
- iv. Sponsorships.

5. Architectural Integrity (C 5)

- i. Physical condition of the building.
- ii. Unique Architectural character and form.
- iii. Compatibility of the new use with the old or existing use.
- iv. Space usage and relationship.
- v. Physical condition of materials.
- vi. Natural ventilation and lighting.

6. Environmental Criteria (C 6)

- i. Waste management.
- ii. Environmental preservation.
- iii. Contamination.
- iv. Reduction of resource consumption.

7. Structural Assessment (C 7)

- i. Structural grids and convertibility.
- ii. Structural requirement of existing/old use.
- iii. Structural requirement of new use.
- iv. Service ducts and corridors.

8. Site Location & Regulatory Compliance (C 8)

- i. Site accessibility.
- ii. Planning Constraints.
- iii. Governmental and Institutional support.
- iv. Compliance with local planning regulations.

The three most widely utilized MCDM in the field are the Analytic Network Process (ANP), the AHP, and the fuzzy delphinium techniques. The worth of cultural heritage is also assessed using the expertise of experts, and suitable alternatives are chosen for its preservation or renovation [15, 16].

In this study, professionals and locals work together to tackle complicated problems using the AHP technique. The analytical hierarchy process was chosen because, in contrast to TOPSIS, PROMETHEE, and other similar processes, it considers the correlation between the different criteria. Additionally, no extra tool is needed to determine the criteria's weight.

This study also considered the principles of successful Adaptive reuse projects proposed. To achieve the proper balance, any adaptive reuse project must incorporate the following principles:

- i. Every project involving adaptive reuse must react to its surroundings appropriately and enhance the context of its environment.
- ii. The structures must be adaptable enough to support entirely new uses in addition to their original purposes.
- iii. The structures must be perfect for their brand-new purpose and role.
- iv. The structures ought to be beautiful to look at for users and bystanders alike.
- v. Above all, the modified structures should be environmentally friendly, energy- efficient, and sustainable.

MATERIALS AND METHODS

Methodology for Selecting a Compatible Function for Ojo Fagbewesa's Building

The methodology for this study comprises two main phases:

- i. The first phase includes a field survey, literature review, and questionnaire survey that help to determine the reuse alternatives and criteria.
- ii. The second phase is the application of AHP approach for the final selection of the reuse alternatives.

Literature Review, Field and Questionnaire Surveys

A field survey was carried out to gather data, such as location, historical background, physical condition, problems, photographs, and scaled sketch plans, sections, and elevations of the hospital building in addition, neighbors, workers and grandson of the owner were interviewed in order to select five suitable alternative functions out of the 10 that had been long-listed with the help of local people who were all from Osun state as well. This concluded that out of 10 possible uses, the following 5 were the most appropriate: community center, Heritage Museum, educational building, co working space, Art gallery and studio. This data was incorporated into the AHP as the fourth step of the methodology.

Analytical Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) is termed "analytical" because it effectively decomposes a multi-criteria decision-making problem into fundamental components [15–17]. It is also referred to as "hierarchical" since it allows for the breakdown of complex issues into more manageable sub-problems [17, 18]. Essentially, AHP aids decision-makers in visualizing the relationships among the primary objective, criteria, sub-criteria, and alternatives within a hierarchical framework. This method establishes priorities through paired comparisons, simplifying the problem by dividing its elements into smaller, more tangible evaluation sets [19].

This foundational phase of AHP was initially articulated by Saaty (1990) [20]. The hierarchical organization of various criteria and alternatives for new uses underpins the adaptive reuse framework for heritage buildings generally, including those in Osogbo, Osun State. This structured methodology involved input from ten professionals with expertise in adaptive reuse or heritage conservation, as well as ten locals residents familiar with the building and its context in Osogbo (Figure 2).

These participants contributed to the development of pairwise comparison matrices at each hierarchy level, which facilitated the creation of a robust and context-sensitive framework.

Defining the Problem

For this study, the goal is determined as “defining the most suitable alternative for reusing the hospital building” and criteria for defining the most suitable function for the historic building are determined from the literature review. Besides, the alternatives are collected from the questionnaire survey with locals. Accordingly, the phases of creating AHP started.

LEVEL 1:
GOAL

LEVEL 2:
Criteria &
Sub-Criteria

LEVEL 3:
Alternatives

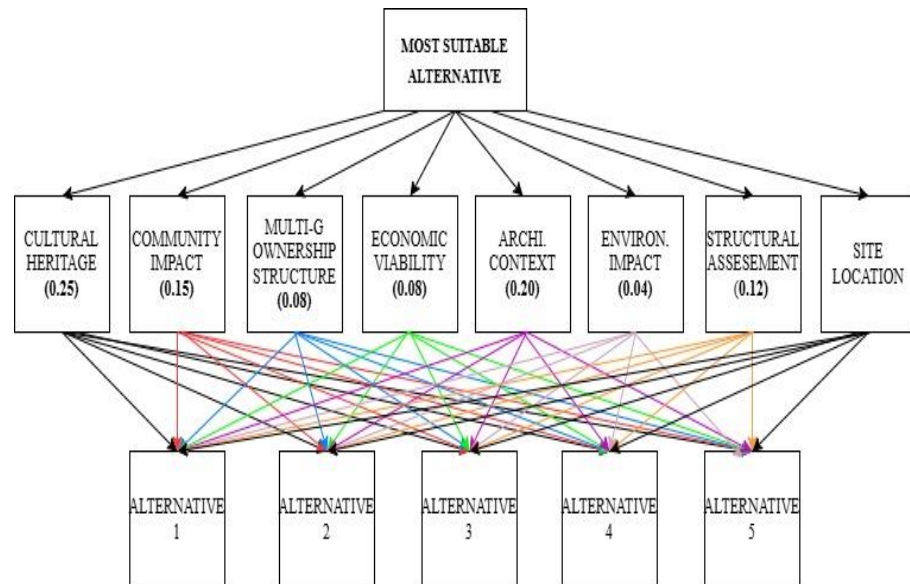


Figure 2. A hierarchy of Analytic Hierarchy Process (AHP) (*Source:* developed by authors).

The pairwise comparisons utilized Saaty’s fundamental scale for decision-making, as outlined in Table 1. According to Zhu et al. [21], this nine-point scale is widely recognized as a scientifically valid approach for comparing alternatives in multi-criteria decision analysis (MCDA), with responses recorded using Expert Choice software. Most professionals involved in the study supported the use of Saaty’s scale, highlighting its effectiveness in providing a rational basis for comparisons. However, some local participants required additional guidance and clarification to generate meaningful and consistent responses, underscoring the importance of careful facilitation when engaging non-experts in such decision-making processes (Figures 3–8).

Table 1. Saaty’s judgment scale.

Number Scale	Description	Definition
1	Two activities contribute equally to the objective	Equal
3	Experience and judgement slightly favor one activity over another	Slight
5	Experience and judgement moderately favor one activity over another	Moderate
7	An activity is favored very strongly over another, its dominance demonstrated in practice	Strong
9	The evidence favoring activity over another is of the highest possible order of affirmation	Extreme

Source: Saaty, 1990; Saaty 1994.

Creating the Decision Matrix

This is the final step of AHP which shows the relationship between two factors (Saaty, 2008) [22]. Among all alternatives, the one which has the highest score (importance) is the most suitable alternative (Dincer & Gorener, 2011) [23].

In the following sections, the application of the model on the case study is pretested.

Application of the Model to the Case Study

The successful adaptive reuse decision-making requires a thorough analysis of the heritage building's values, locational, physical characteristics, spatial characteristics, and analysis of its environment as discussed in 2.0.

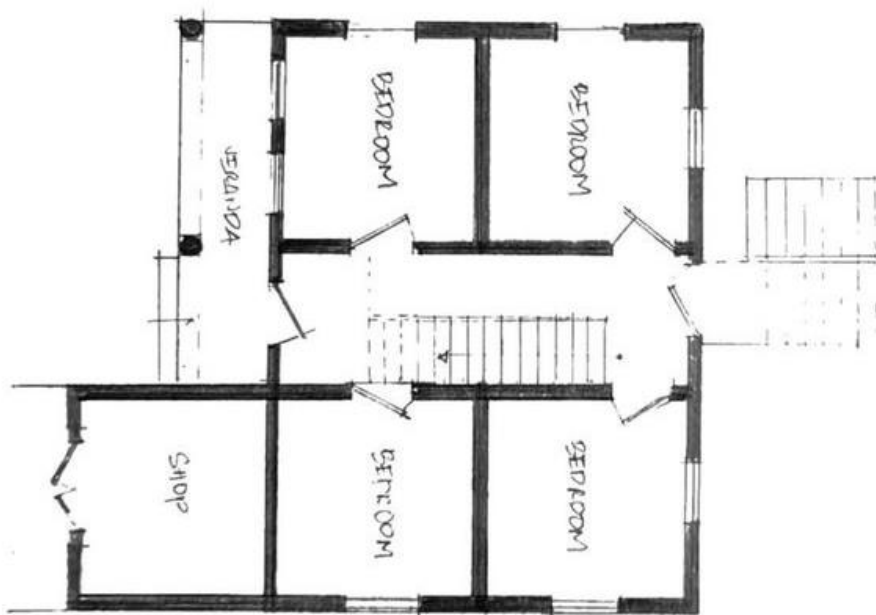


Figure 3. Ground floor plan.

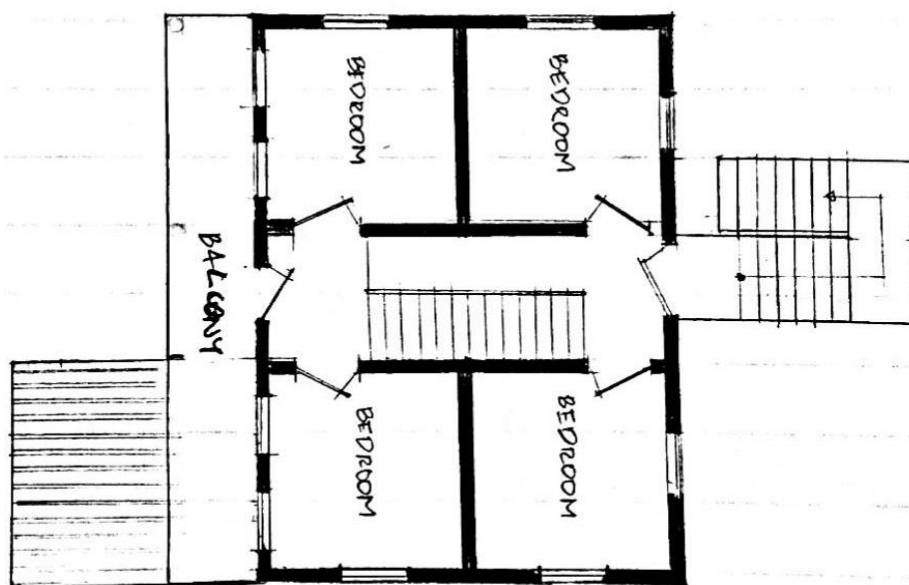


Figure 4. First floor plan (Source: Author, 2024).

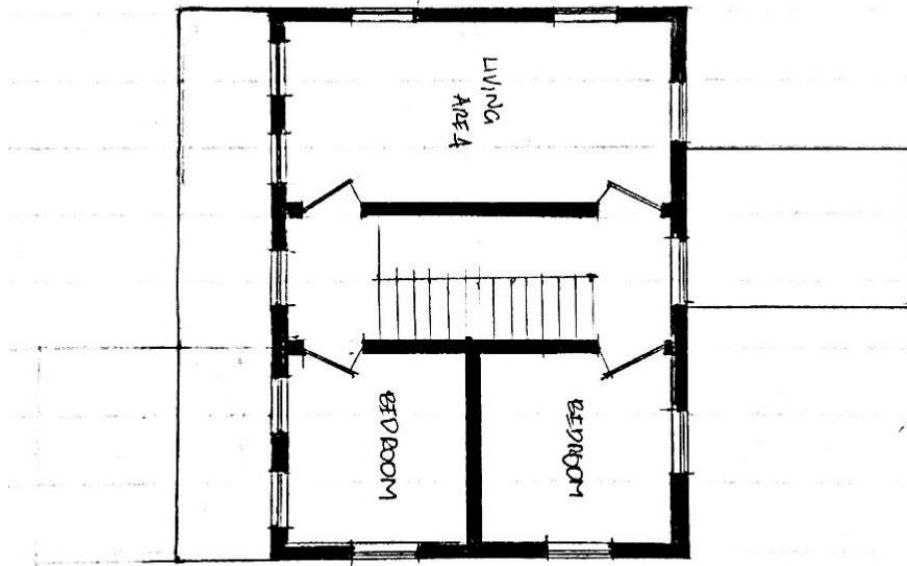


Figure 5. Second floor plan.



Figure 6. Afro-Brazilian styled window hood.



Figure 7. Approach view.



Figure 8. Back view.

Selection of Alternative Use Options

According to the Onsite observations, the building does not have any structural damage but is functionally and physically obsolete. The main damage is to the timber for the windows and plaster which are in a state of decay (Figures 3–8). There are no signs of cracks and major decay that may lead to structural failure and collapse. List of proposals based on survey of building's characteristics, community needs, market demand, estate realtors and preservation goals.

i. Community Hub

- *Ground floor:* Community café, exhibition rooms for local artisans and meeting room.
- *First floor:* Classrooms/ activity rooms for various community programs (language classes).
- *Third floor:* Community library.

ii. Co- working Space

- *Ground floor:* Reception, café/ lounge area for informal meetings and relaxation.
- *First floor:* Shared co-working desks, small private meeting rooms.
- *Second floor:* Large sitting room for conferences or large meetings, bedrooms for private meeting rooms and offices.

iii. Art Gallery and Studio

- *Ground floor:* Gallery space for exhibition and reception.
- *First floor:* Artist studios, workshops.
- *Second floor:* Large sitting rooms for groups and studio spaces.

iv. Heritage Museum and Archive

- *Ground floor:* Museum exhibits, gift shops.
- *First floor:* Archive and research rooms.
- *Second floor:* Seminar or lecture room in the sitting room, offices or small research rooms in the bedrooms.

v. Educational Facility

- *Ground floor:* Reception, small lecture hall, and library.
- *First floor:* Classrooms for various subjects.
- *Second floor:* Faculty lounge in the sitting room, two offices or tutorial rooms in the bedrooms.

vi. Native Themed Restaurant and Lounge

- *Ground floor:* manager's office, staff changing room, café and local bar, outdoor kitchen.

- *First floor*: Eating area, outdoor dining.
- *Second floor*: Luxury lounge, private dining area.

RESULTS

After identifying 8 criteria from the literature and gathering five alternatives from the questionnaire with locals, the authors selected the different stakeholders to determine the most suitable alternatives for the building by using the AHP method. According to Cheng and Li (2001) [24], the AHP approach is a subjective methodology that does not necessarily require many experts to participate in the process. Thus, two different teams, 6 experts and 10 locals were selected for the decision-making; the experts and locals were responsible for evaluating the criteria with respect to their importance in achieving the overall goal. The expert team (10 experts) included architects, planners, landscape designers, lecturers on the conservation of heritage sites/buildings (Tables 2 and 3).

Table 2. List of experts.

S.N.	Field	Occupation	Years in the Field
1	Architecture	Director Archi/Construction firm	9
2	Architecture	Director Archi firm	22
3	Architecture	Lecturer	16
4	Architecture	Lecturer	23
5	Civil Engineering	Lecturer/ Director	9
6	Urban and Regional Planner	Lecturer/Director	12
7	Urban and Regional Planner		10
8	Architecture	Lecturer	8
9	Estate Manager		13
10	Structural Engineering	Lecturer	10

Source: Author, 2024.

People who were born in the city and lived more than 30 years in the city were selected to the local team since the building has been abandoned for several years.

Table 3. List of locals.

S.N.	Number of Years Lived	Gender
1	31	F
2	30	F
3	64	M
4	34	M
5	58	M
6	30	M
7	37	F
8	64	M
9	41	F
10	40	F

Source: Author, 2024.

Interviews with experts were conducted via video calls, while discussions with local participants took place face-to-face and individually. To determine the weighting of each criterion in relation to the primary objective, the research team employed matrix manipulation based on Saaty's super matrix and his 1–9 scaling method. Both groups – 10 experts and 10 locals – were asked to respond to the question: “In the context of the adaptive reuse of the heritage building, which criteria do you consider more important than others?” “Following this, the group of experts was tasked with assessing the weighted criteria against five alternatives. This questioning approach facilitated the establishment of

the importance and priority of both the criteria and alternatives. The results were then input into the “Expert Choice 11” software to calculate the relative significance and inconsistency rates for each criterion, organized in a hierarchical table. To ascertain the weight of each alternative, participants were asked: “Considering each alternative, what score would each receive across each criterion?” In the initial stage of the program, the objective was defined as “the most suitable function for Fagbewesa’s Building.” After establishing this goal, the criteria and alternatives were entered into Expert Choice 11, with values for each criterion specified in the pairwise comparison section. Subsequently, an analysis of the pairwise comparison matrices was conducted. Each criterion’s value was identified and utilized to weigh each alternative comprehensively. The results obtained from this process are presented below.

Cumulative Ranking of Expert Results

The cumulative ranking of expert results presented in Figure 9 and Table 4 illustrates the average importance assigned to various criteria in the adaptive reuse process, based on evaluations from five experts. Each criterion is assessed in terms of its relevance to the decision-making framework for adaptive reuse, emphasizing the multifaceted nature of the evaluation.

The criteria evaluated in this table are as follows:

- *C1*: Cultural Heritage; criterion received the highest cumulative score (24.05%), indicating that preserving cultural heritage is deemed crucial in the adaptive reuse process. This aligns with literature emphasizing the significance of cultural identity in urban development and heritage conservation, which suggests that heritage sites serve as vital links to community identity and history.
- *C2*: Community and Social Impact: 12.68%.
- *C3*: Multi-Generational Ownership Structure 6.80.
- *C4*: Economic Viability 8.03%, economic viability is recognized as important, though not as critical as cultural and social aspects.
- *C5*: Architectural Context 22.70%.
- *C6*: Environmental 4.89%.
- *C7*: Structural 13.58%.
- *C8*: Site Location and Regulatory Compliance 6.77%.

The cumulative ranking from the expert evaluations highlights that cultural heritage, architectural context and community impact are paramount in the adaptive reuse process, while economic viability and environmental impact are also relevant but secondary. This reflects a broader understanding in the field that successful adaptive reuse projects must balance cultural preservation with practical considerations, ensuring that heritage sites continue to serve their communities effectively.

Cumulative Ranking of Criteria by Locals

The results summarize the cumulative rankings of eight criteria evaluated by ten residents regarding the adaptive reuse process. Each criterion reflects different aspects of the decision-making framework, highlighting the priorities and concerns of the community involved in heritage conservation. The criteria evaluated in this table are as follows:

- *C1*: Cultural Heritage (25.63%).
- *C2*: Community and Social Impact (15.43%).
- *C3*: Multi-Generational Ownership Structure (10.29%).
- *C4*: Economic Viability (9.28%).
- *C5*: Architectural Context (15.98%).
- *C6*: Environmental Impact (3.95%).
- *C7*: Structural Assessment (11.54%).
- *C8*: Site Location and Regulatory Compliance (4.80%).

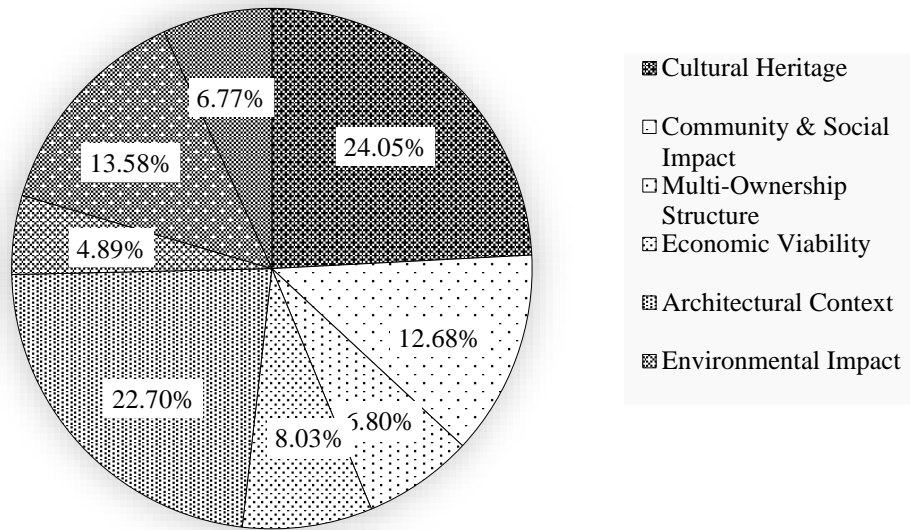


Figure 9. Priority of criteria by experts (*Source:* Developed by Authors).

The results are presented in Table 4 and Figure 10.

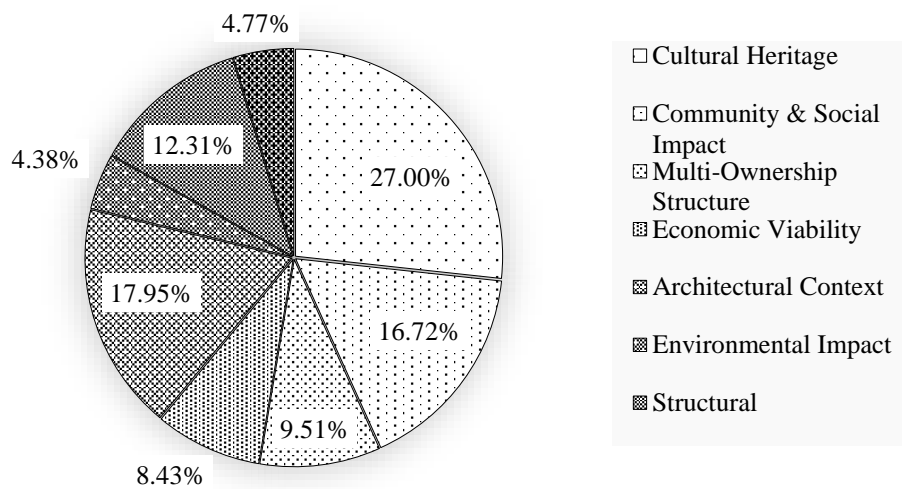


Figure 10. Priority of criteria by locals (*Source:* Author, 2024).

Combined Ranking by All Participants

Figure 11 illustrates the prioritization of various criteria for the adaptive reuse of heritage buildings, based on percentage values assigned to each factor. Here is a breakdown of the categories represented in the chart:

Cultural Heritage (25.53%), Community & Social Impact: (14.70%), Architectural Context (20.33%), Structural (12.95%), Economic Viability (8.23%), Multi-Ownership Structure (8.16%), Environmental Impact: (4.64%), Site Location (5.77%).

Table 4 shows the total scores by both experts and locals, the average of both was calculated to have a balanced score for the identified criteria.

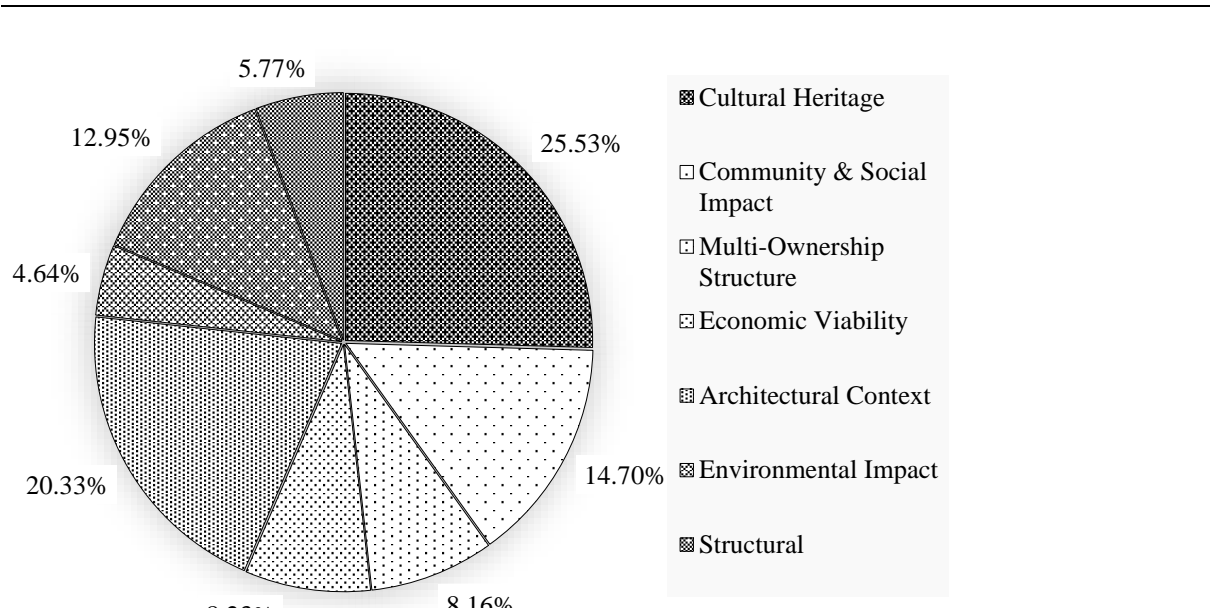


Figure 11. Priority of criteria by experts and locals (Source: Author, 2024).

Table 4. Average of all participants.

Criteria	Overall Locals %	Overall Experts %	Total	Av. %
C1	27.00	24.05	51.05	25.53
C2	16.72	12.68	29.40	14.70
C3	9.51	6.80	16.31	8.16
C4	8.43	8.03	16.46	8.23
C5	17.95	22.70	40.65	20.33
C6	4.38	4.89	9.27	4.64
C7	12.31	13.58	25.89	12.95
C8	4.77	6.77	11.54	5.77

Table 5 shows the individual scores of the criteria for the adaptive reuse process with cultural heritage and significance scoring the highest.

Table 5. Scores/value of each criterion.

Criteria	Scores
Cultural Heritage and Significance (C1)	0.26
Architectural Context (C5)	0.20
Community and Social Impact (C2)	0.15
Structural Assessment (C7)	0.13
Multi-Generational Ownership Structure (C3)	0.08
Economic Viability (C4)	0.08
Site Location & Regulatory Compliance (C8)	0.06
Environmental Impact (C6)	0.05

After the value of each criterion was calculated, the author created Microsoft excel template, to make it easier for experts and stakeholders to rank of value each alternative use against the identified criteria. Figures 12–15 show the individual Microsoft excel template sheet. Figure 12 shows the data sheet where experts inputted the score for the alternatives against the identified criteria. Figure 13 shows the total score of each alternative after evaluation by experts and the ranking of the alternatives from the highest to the lowest. The template is flexible as it can take as many alternatives as possible.

1	Scoring Scale: The system adopts a scoring scale from 1 - 9								
2									
3	ID	Parameter	Weight	Community Hub	Co-working space	Art Gallery and Studio	Heritage Museum and Archive	Educational Facility	Native Restaurant
4	1	Cultural Significance	0.26	5	4	5	5	8	3
5		Architectural Context	0.2	7	3	4	4	7	9
6	3	Community Impact	0.15	9	5	3	4	4	6
7		Structural Assessment	0.13	9	2	7	8	4	9
8	5	Multi-generational	0.08	8	3	5	6	4	3
9	6	Economic viability	0.08	7	2	7	6	9	3
10	7	Site Location	0.06	7	7	5	5	4	8
11		Environmental Impact	0.05	2	3	5	6	2	5
14		Total		54	29	41	44	42	46
15									

Figure 12. Data sheet for scoring.

1	Scoring Scale: The system adopts a scoring scale from 1 - 9									Alternative	RANK	Total
2										Community Hub	1	6.94
3	ID	Parameter	Weight	Community Hub	Co-working space	Art Gallery and Studio	Heritage Museum and Archive	Educational Facility	Native Restaurant			
4	1	Cultural Significance	0.26	1.3	1.04	1.3	1.3	2.08	0.78	Educational Facility	2	5.98
5	2	Architectural Context	0.2	1.4	0.6	0.8	0.8	1.4	1.8	Native Restaurant	3	5.86
6	3	Community Impact	0.15	1.35	0.75	0.45	0.6	0.6	0.9	Heritage Museum and Archive	4	5.3
7	4	Structural Assessment	0.13	1.17	0.26	0.91	1.04	0.52	1.17	Art Gallery and Studio	5	4.97
8	5	Multi-generational	0.08	0.64	0.24	0.4	0.48	0.32	0.24	Co-working space	6	3.62
9	6	Economic viability	0.08	0.56	0.16	0.56	0.48	0.72	0.24	Alternative J	7	0
10	7	Site Location	0.06	0.42	0.42	0.3	0.3	0.24	0.48	Alternative I	8	0
11	8	Environmental Impact	0.05	0.1	0.15	0.25	0.3	0.1	0.25	Alternative H	9	0
14		Total		6.94	3.62	4.97	5.3	5.98	5.86	Alternative G	10	0
15												
16												
17												

Figure 13. Total score and ranking of alternatives from the highest to the lowest suitable.



Figure 14. Total score and ranking of alternatives from the highest to the lowest suitable.

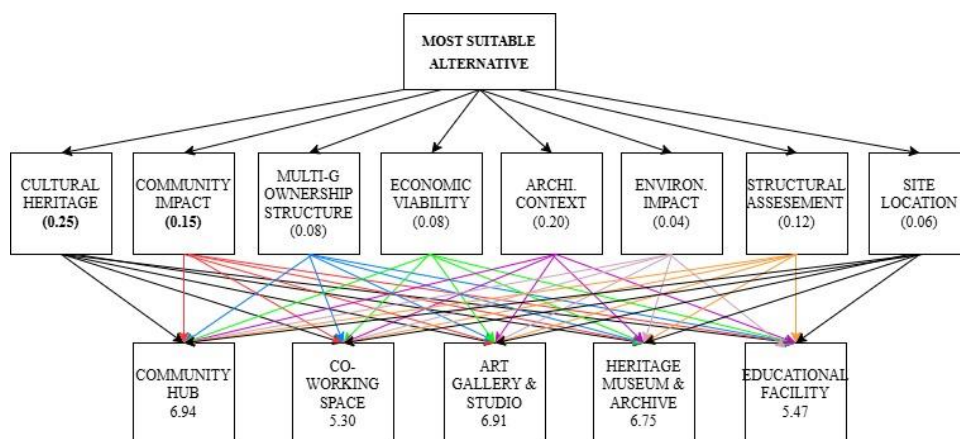


Figure 15. Graphical representation of the multicriteria framework.

CONCLUSIONS

The study on the adaptive reuse of Fagbewesa's House in Osogbo, Osun State, Nigeria, underscores the critical role that heritage conservation plays in maintaining cultural identity and historical significance amidst urbanization pressures. By employing a Multi-Criteria Decision-Making (MCDM) framework, specifically the Analytic Hierarchy Process (AHP), this research provides a structured approach to evaluate potential new uses for heritage buildings, ensuring that both community needs and historical integrity are respected. The findings suggest that transforming Fagbewesa's House into a multifunctional community hub not only honors its architectural legacy but also revitalizes local engagement and economic opportunities. This case study serves as a model for similar initiatives, demonstrating how adaptive reuse can bridge the past and present, fostering sustainable urban development while preserving invaluable cultural narratives for future generations.

REFERENCES

1. Osasona CO. Heritage Architecture as Domestic Space: A Tale of Three Buildings in Ile-Ife, Nigeria. *Int J Sustainable Dev Plann.* 2015;10(1):42–65. doi: 10.2495/SDP-V10-N1-42-65.
2. Saaty TL. *Multicriteria Decision Making: The Analytic Hierarchy Process: Planning, Priority Setting Resource Allocation.* 2nd ed. Pittsburgh, PA: RWS Publications; 1990.
3. De Santoli L, Mariotti M. Energy efficiency in historic buildings. *Int J Sci Res Eng Manag.* 2023;7(12):1–10. doi: 10.1234/ijresrem.v7i12.12345.
4. Hoursan F, Mofidi M. Revitalizing Golshan and Sharifieh caravanserais: A study in adaptive reuse and urban preservation. *Discover Geoscience.* 2024. doi: 10.1007/s44288-024-00041-1
5. Onyima BN. Nigerian Cultural Heritage: Preservation, Challenges and Prospects. *New J Afr Stud.* 2016;12(1). Available from: <http://dx.doi.org/10.4314/og.v12i1.15>.
6. Li Y, Zhao L, Huang J, Law A. Research frameworks, methodologies, and assessment methods concerning the adaptive reuse of architectural heritage: A review. *Built Heritage.* 2021;5:Article 6.
7. Bottero M, Datola G, Fazzari D, Ingaramo R. Re-Thinking Detroit: A Multicriteria-Based Approach for Adaptive Reuse for the Corktown District. *Sustainability.* 2022;14:8343. doi: 10.3390/su14148343.
8. Cantell SF. *The Adaptive Reuse of Historic Industrial Buildings: Regulation Barriers, Best Practices and Case Studies.* Master of Urban and Regional Planning Thesis, Virginia Polytechnic Institute and State University; 2005.
9. Lobna AE, Azize EL. Use multi-criteria analysis (MCDM) to determine the most appropriate funding for the adaptive reuse of heritage buildings: A case study of the Champollion Palace. *Int J Multidiscip Stud Archit Cult Heritage.* 2022. doi: 10.21608/ijmsac.2022.267672.
10. Nadkarni B, Rohit R, Puthuvayi B. A comprehensive literature review of Multi-Criteria Decision-Making methods in heritage buildings. *J Build Eng.* 2020;101814. doi: 10.1016/J.JOBE.2020.101814.
11. Nocca F, Bosone M, Orabona ML. Multicriteria evaluation framework for industrial heritage

- adaptive reuse: The role of the 'intrinsic value'. *Land*. 2024. doi: 10.3390/land13081266.
12. Pierfrancesco F, Sicignano E, Donnarumma G. An AHP-Based Methodology for the Evaluation and Choice of Integrated Interventions on Historic Buildings. *Sustainability*. 2020. doi: 10.3390/SU12145795.
 13. Yaolin, Z. An application of the AHP in cultural heritage conservation strategy for China. *Can Soc Sci*. 2006;2(3):32–36. doi: 10.3968/j.css.1923669720060203.002.
 14. Hebatu-Allah AF, Fattah H, Ali F, Bakr A, Hasan AE. Multi-criteria decision making for adaptive reuse of heritage buildings: Aziza Fahmy Palace, Alexandria, Egypt. *Alex Eng J*. 2019. doi: 10.1016/J.AEJ.2019.04.003.
 15. Morkunait EŽ, Kalibatas D, Kalibatien D. A bibliometric data analysis of multi-criteria decision-making methods in heritage buildings. *J Civ Eng Manag*. 2019;25:76–99.
 16. Oktay BV, Günçe K, Iranmanesh A. Multi-criteria assessment for defining compatible new use: Old Administrative Hospital, Kyrenia, Cyprus. *Sustainability*. 2021;13(4):1922. doi: 10.3390/su13041922.
 17. Calabrò F, Della Spina L. Innovative tools for the effectiveness and efficiency of administrative action of the metropolitan cities: The strategic operational programme. *Adv Eng Forum*. 2014;11:3–10.
 18. Yau Y. Multi-criteria decision making for urban built heritage conservation: Application of the analytic hierarchy process. *J Build Appr*. 2009;4:191–205.
 19. Cremades L, Ponsich A. A novel technique for computing criteria weights for evaluating alternatives using the AHP method. *SSRN*. 2023. doi: 10.2139/ssrn.4585258.
 20. Saaty TL. How to make a decision: The analytic hierarchy process. *Eur J Oper Res*. 1990;48:9–26.
 21. Tian-Lu Z, Ya-jun L, Ceng-Juan W, Han Y, Yi-qian Z. Research on the design of surgical auxiliary equipment based on AHP, QFD, and Pugh Decision Matrix. *Math Problems Eng*. 2022. doi: 10.1155/2022/4327390.
 22. Saaty TL. Decision making with the analytic hierarchy process. *Int J Serv Sci*. 2008;1:83–98.
 23. Dinçer H, Gorener A. Performance evaluation using AHP-VIKOR and AHP-TOPSIS approaches: The case of service sector. *Sigma J Eng Nat Sci*. 2011;29:244–60.
 24. Cheng EW, Li H. Analytic hierarchy process: An approach to determine measures for business performance. *Meas Bus Excellence*. 2001;5:30–7.