

Interior Designer Selection Models for Condominium Developments in Bangkok

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Abstract - Interior designer selection is a critical factor that real estate developers should consider in meeting the needs of consumers and controlling the budget for interior design, which is high-value work. The inability to choose appropriate interior designers can cause delays and budget overruns. However, the process can become complex, with numerous factors influencing the interior designer's selection. This research aims to create a model for the interior designer selection for condominiums in Bangkok using the Analytic Hierarchy Process (AHP) for each segment of condominiums. The results revealed that developers prioritize the punctuality of interior designers the most, with importance weights of 30.08% and 39.65% for the ultimate luxury and luxury condominiums, respectively. For the main-class condominiums, developers prioritize the value of services offered by interior designers, with an importance weight of 22.45%. For the economy-class condominiums, developers prioritize the budget allocated for interior design, with an importance weight of 21.18%. Subsequently, a model was developed for selecting interior designers using the analyzed importance weights. This model is a valuable tool to assist developers or decision-makers in choosing interior designers that align with project requirements, thereby preventing errors and budget overruns while effectively meeting consumer demands.

Keywords: Analytical Hierarchy Process (AHP); Interior Designer; Decision Making; Condominium; Bangkok

1. Introduction

Condominiums in Bangkok have been distributed in economic areas, influencing the high competition in the condominium market nowadays, including economic and social changes affecting the demand for condominium payments [1]. Most real estate developers focus on condominium development projects, specifically in business areas and along mass transit systems, because the price of land in the city has increased. The area can meet the lifestyle needs of consumers who require convenience and take a short time to travel between residence and workplace. Mostly, these consumers are of working age, so they have a demand for buying accommodation at a lower price [2]. Condominiums have become a famous residence in the new generation by emphasizing satisfaction as a crucial factor in purchasing decisions. The new generation tends to be single. The condominium offers the convenience of maintenance with just the right amount of usable space. Also, interior decorations can be quickly done since condominium rooms are initially designed according to the nature of the project in common [3].

In addition to the types of residential that are different according to the needs of consumers, interior design and decoration are other factors that affect the comfortable state of consumers. Treetrong [4] proposed the concept of interior design for condominiums in a long-term rental, stating, "Good quality design must study the characteristics of the project, especially the necessary information, which is a variable in every step of the design whole area plans and furniture as well as defines design concepts because each project has specific requirements that affect user behavior. The design of this type of project must clearly emphasize utility, be suitable for long-time renters, have the warmth of a home, and be maintained easily. There are facilities similar to a home," showing that interior design and decoration are other factors that the real estate developer of a condominium should be given importance. Apart from that, interior design is a high-value work in the project that affects the overall budget. Budget overruns may be acceptable if the real estate developer can select a suitable interior designer. An interior designer who can carry out work according to the project's nature and consumers' needs should be considered. However, condominiums provide many price levels and have a variety of customers. Proper interior designer selection is complicated and has a certain level of difficulty. Creating a model for selecting interior designers for condominium projects in Bangkok can be used to help with the decision of interior designers selection for real estate developers.

2. Literature Review

2.1 Criteria for Interior Designer Selection

The researchers found no studies directly related to the interior designer selection from the research review. However, the researchers researched the criteria for the selection and evaluation of designers and project managers contracted for exhibitions by government agencies, the article regarding the selection of designers, and the standards of the Association of Siamese Architects under the Royal Patronage of the Year 2008 concerning the practice of interior architecture and decorative arts. According to Manohan [5], there are various methods for selecting designers and project managers, such as selecting designers and project managers based on their demonstrated abilities, hiring designers and project managers in urgent situations, and hiring designers with unique artistic or architectural qualities. When selecting exhibition designers or contractors [6], the selection criteria are evaluated and scored based on various factors, including (1) Aligning design concepts with the client's objectives. (2) The presentation of exhibition layouts, interior decoration designs, and creative ideas. (3) The portfolio and experience of the designer. (4) The quality and suitability of materials selected. (5) The workflow and project timeline. The criteria and factors of interior designer selection can be concluded in Table 1.

Table 1: Factors of interior designer selection from literature review

Factors of interior designer selection	Think of Living (2011)	Trित्रong (2009)	Chingnawat (2013)	Manohan (2007)	Kitprasert (2010)	Thailand Decorators Association (2008)	Krabi Municipality (2012)
[A] Characteristics of Interior Designers							
A1 Designer's experiences		✓		✓	✓		✓
A2 Designer's creativity		✓		✓			✓
A3 Rationality presentation		✓			✓	✓	
A4 Clear arrangement of works		✓				✓	✓
A5 Listening and accepting suggestions					✓		
[B] Skills of Interior Designers							
B1 Understand about condominiums	✓	✓			✓	✓	
B2 Can give helpful advice		✓			✓	✓	

Factors of interior designer selection	Think of Living (2011)	Tritrong (2009)	Chingnawat (2013)	Manohan (2007)	Kitprasert (2010)	Thailand Decorators Association (2008)	Krabi Municipality (2012)
B3 Educational background of designers		✓		✓		✓	✓
B4 Knowledge and be professional in choosing suitable decoration materials			✓			✓	✓
[C] Fee and contract							
Service fees offered by interior designers					✓		
C1 Budget set by the company					✓	✓	
C2 Budget for interior decoration					✓		
C3 Details in the contract from each side					✓		
[D] Track record in the past							
D1 Duration during the business							✓
D2 Performance and amount of work						✓	
D3 Punctuality							✓
D4 Presentation style						✓	
D5 Contractor quality inspection				✓		✓	

2.3 Analytic Hierarchy Process; AHP

Chaibunruang [7] describes the meaning of the Analytic Hierarchy Process (AHP) as an efficient decision-making process used to measure the relative importance of various criteria in a decision-making context, yielding decisions that align most accurately with the intended objectives. Thomas Saaty developed AHP by imitating human thought behavior. It has been widely applied in various fields, such as business operations and human resource management. The advantages of this process are (1) AHP provides more reliable results than other methods because it employs pairwise comparisons as a preliminary step in the decision-making process. (2) AHP utilizes a hierarchical structure resembling human thought processes, making it easy to understand and navigate. (3) The outcomes of AHP are quantitative, simplifying the ranking of priorities. (4) AHP can handle decision-making scenarios with inherent biases or tendencies. (5) AHP can be employed for individual and group decision-making processes [8].

The decision-making process using the Analytic Hierarchy Process (AHP) typically begins with defining a goal or a problem by creating a hierarchy model, which is the essential tool for decision-making, then compares the importance of criteria used in the decision-making process to find the weight of each criterion. Afterward, all available options are evaluated through these criteria to rank the importance of each option [9]. The step-by-step procedure can be illustrated as follows:

1. Creating Hierarchy Decision Model: This model is used for analyzing collected data by determining a goal or problem as the first step, then determining the main criteria to compare with the sub-criteria for measuring the importance of each pair. Finally, the model shows the alternative which is considered.

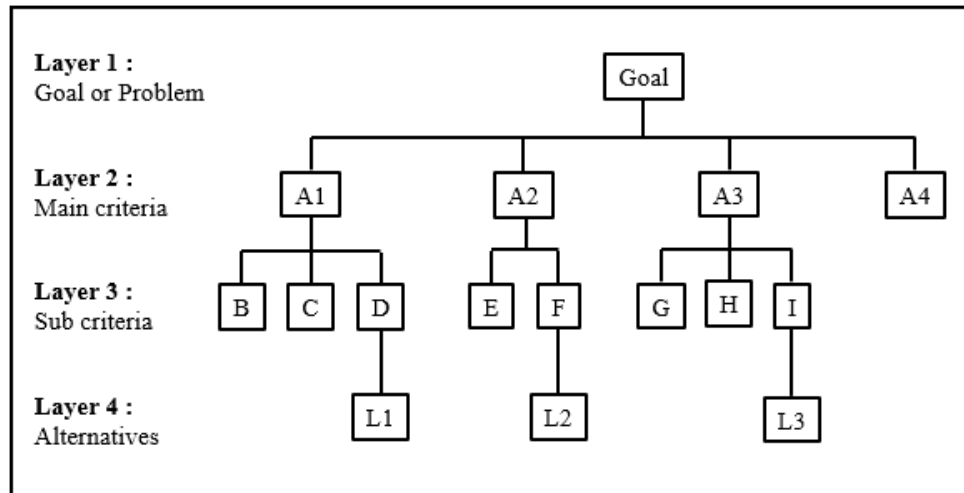


Fig. 1: Hierarchy Decision Model

2. Pairwise Comparison: The heart of AHP involves pairwise comparisons between criteria or alternatives at each level of the hierarchy. Decision-makers assign relative importance or preference values to each pair, typically using a scale from 1 to 9, with 1 indicating equal importance, 3 indicating intermediate importance, 5 indicating strong importance, 7 indicating very strong importance, and 9 indicating extreme importance [10]. A matrix table compares the criteria used to make pairwise decisions and weigh the criterion's importance. The matrix table is also used for the consistency check of the decision criterion from the top to the lowest order of the hierarchy decision model to ensure validity.

Table 2: Matrix Table for Pairwise Comparison

Criteria of Decision		Factors			
		A1	A2	A3	A4
Factors	A1	A_{11}	A_{12}	A_{13}	A_{14}
	A2	$1/A_{12}$	A_{22}	A_{23}	A_{24}
	A3	$1/A_{13}$	$1/A_{23}$	A_{33}	A_{34}
	A4	$1/A_{14}$	$1/A_{24}$	$1/A_{34}$	A_{44}

3. Determine the Importance of the Criteria by Weighting. Once the pairwise comparisons are completed, AHP calculates weights for each criterion and sub-criterion in the hierarchy. These weights reflect the relative importance of each criterion in achieving the overall goal. AHP also calculates scores for each alternative by comparing them to the established criteria weights. The scores indicate how well each alternative aligns with the desired objectives. Based on the calculated scores, alternatives can be ranked from most to least preferred. This ranking provides a clear decision-making framework for selecting the best alternative according to the established criteria and objectives. AHP includes a consistency check to ensure the validity of the pairwise comparisons. The consistency ratio (C.R.) is calculated to determine whether the comparisons are consistent or need revision. This step helps reduce potential biases in the decision-making process.

3. Methodology

This research is qualitative research that aims at facts and quantitative conclusions. The researcher surveyed and analyzed collected data from experts in Bangkok's real estate development business types of condominiums. The research methodology is shown in Figure 2.

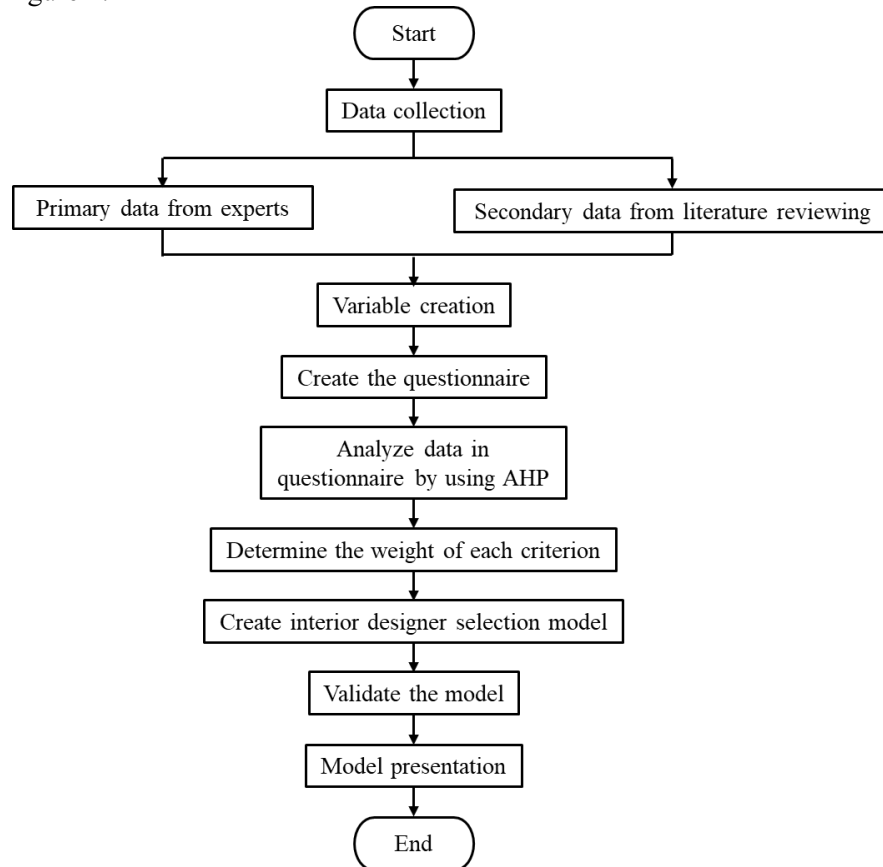


Fig. 2: Research Methodology

The research tools utilized for data collection in this study can be categorized into two types: interviewing forms and questionnaires. (1) Interviewing forms were used to inquire about the factors influencing the selection of interior designers for condominium development projects and determine factors in questionnaires. (2) The researcher created questionnaires by compiling factors derived from literature reviews, theoretical concepts, and interviews with experts in residential condominium development to select the interior designer for condominiums. From the previous review, factors of interior designer selection can be determined and divided into each criterion in the decision model by the following:

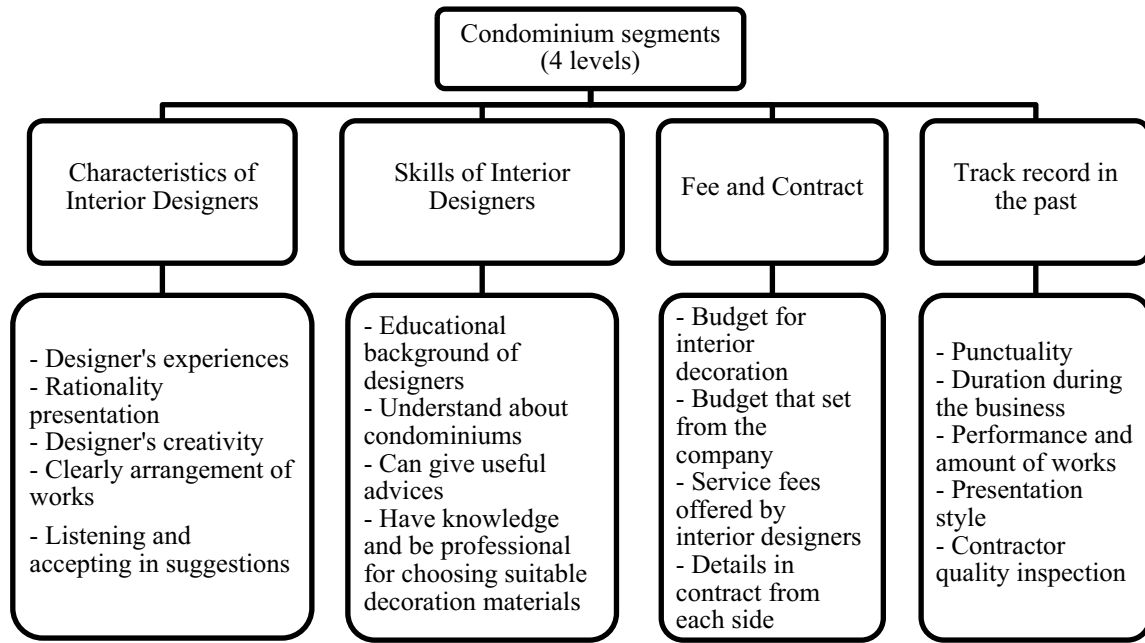


Fig. 3: Hierarchy Decision Model for Interior Designer Selection

3.1 Data analytics by using AHP and weighting the criteria of interior designer selection

After creating the hierarchy decision model, a matrix table was created for pairwise comparison to compare each decision criterion, both between main criteria and sub-criteria, and then weigh the importance value, which can be shown in Table 4

Table 4: Pairwise Comparison Matrix for the main criteria in the ultimate luxury condominiums

Criteria	A	B	C	D		
A	1.00	0.20	0.33	0.11		
B	5.00	1.00	3.00	0.20		
C	3.00	0.33	1.00	0.11		
D	9.00	5.00	9.00	1.00		
SUM	18.00	6.53	13.33	1.42		

Criteria	A	B	C	D	SUM	Weight
A	0.056	0.031	0.025	0.078	0.19	4.73%
B	0.278	0.153	0.225	0.141	0.80	19.91%
C	0.167	0.051	0.075	0.078	0.37	9.27%
D	0.500	0.765	0.675	0.703	2.64	66.09%

When the importance value of each criterion has been obtained, a consistency check must be performed. It is calculated using the ratio between the consistency index (C.I.) calculated from the matrix table and the random consistency index (R.I.). The C.R. value must be less than or equal to 0.10 to be considered consistent; it can be accepted. Suppose the C.R. value is more significant than 0.10. In that case, it is considered unacceptable, and the comparison scores' weighting in that criterion must be reconsidered until the acceptable C.R. value is passed.

3.2 Interior Designer Selection Model

In this research, four models are presented according to price level segments. Interior designer selectors can score each box on each factor considered an interior designer's qualifications. In grading, the rating scale method is used, in which the target values are divided into five levels, arranged from the lowest performance target to the highest, which is 1 (Acceptable Lowest Target Value) to 5 (Hard Target Value), with the general performance standard target being the score level of 3.

4. Results

The researcher collected data using an evaluation form from 5 experts in real estate development projects type of condominiums in Bangkok to find factors affecting the decision to choose an interior designer. The most significant factors are compared using the AHP to all four specified price levels. A weighted analysis of the interior designer's selections was performed by multiplying the importance of each main criterion by the importance of each sub-criteria and being able to know the factors affecting the decision to select an interior designer for condominiums in Bangkok. The results of this study can be shown in Table 6.

Table 6: Total importance value of factors in interior designer selection for each segment of condominiums

	Ultimate luxury condominiums	Luxury condominiums	Main-class condominium	Economy-class condominiums
[A] Characteristics of Interior Designers	4.73%	5.32%	4.43%	4.64%
A1 Designer's experiences	2.06%	1.82%	1.63%	0.57%
A2 Designer's creativity	0.70%	0.58%	0.53%	0.73%
A3 Rationality presentation	0.64%	1.00%	0.88%	1.55%
A4 Clearly arrangement of works	0.35%	1.17%	0.89%	1.12%
A5 Listening and accepting suggestions	0.98%	0.76%	0.50%	0.66%
[B] Skill of Interior Designers	19.91%	23.20%	21.89%	12.21%
B1 Understand about condominiums	5.68%	11.37%	6.94%	2.92%
B2 Can give helpful advice	9.17%	2.49%	3.11%	2.07%
B3 Educational background of designers	2.03%	7.33%	10.08%	2.41%
B4 Knowledge and be professional in choosing suitable decoration materials	3.03%	2.01%	1.76%	4.82%
[C] Fee and Contract	9.27%	10.69%	40.51%	47.10%
C1 Service fees offered by interior designers	1.20%	5.73%	22.45%	10.79%
C2 Budget set by the company	1.66%	2.45%	5.34%	6.37%
C3 Budget for interior decoration	3.59%	1.68%	10.67%	21.18%
C4 Details in the contract from each side	2.82%	0.83%	2.05%	8.75%
[D] Track record in the past	66.09%	60.79%	33.17%	36.05%
D1 Duration during the business	5.15%	7.56%	8.93%	2.07%
D2 Performance and amount of work	6.47%	3.89%	4.12%	6.90%
D3 Punctuality	39.65%	30.08%	8.18%	13.88%
D4 Presentation style	6.49%	6.19%	3.37%	1.69%
D5 Contractor quality inspection	8.33%	13.07%	8.56%	11.50%
First 80 % list	80.94%	81.33%	81.17%	84.20%

From Table 6, it was found that in the ultimate luxury and the luxury condominiums, real estate developers give the most importance to the punctuality of the interior designer, with an essential value of 30.08 percent and 39.65 percent, respectively. In the main-class condominiums, real estate developers give importance to the service fees offered by interior designers, which has an essential value of 22.45 percent, and in the economy-class condominiums, place the most importance on the budget for interior decoration, which has an essential value of 21.18 percent. From the analysis to find

the weight importance value of each criterion, if the researcher inspected for consistency, it was found that every criterion had consistency values less than 0.10, meaning that the criteria were consistent. The weight importance value can be accepted.

5. Conclusion

From the research results, the price level of condominiums (Baht per square meter) is most related to the criteria for interior designer selection. The price level of the condominium will determine the study of factors affecting the selection of interior designers and the weight in the interior designer selection by comparing factors in each main criterion and sub-criterion. The information was obtained from evaluation and questionnaires from real estate developers condominium types in Bangkok. It is possible to know the importance of the factors that most affect the selection of interior designers in each price level by using AHP for analysis. The ultimate luxury and luxury condominiums, real estate developers place the most importance on the punctuality of interior designers, with weight values equal to 30.08 percent and 39.65 percent, respectively. In the main-class condominiums, real estate developers value the service fees offered by interior designers, which has an importance weight of 22.45 percent. In economy-class condominiums, real estate developers place the most importance on the budget for interior decoration, which has an importance weight of 21.18 percent. These important weight values can be used as data to create a model for the interior designer selection for selecting interior designers for condominiums in Bangkok. This model is another tool to help condominium real estate developers or selectors select interior designers to be more efficient, meet the needs of consumers exactly, and prevent budget overrun in the project.

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