

S.W.O.T ANALYSIS: CURRENT STATUS OF CONSTRUCTION

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Abstract - This paper contains SWOT Analysis for a construction firm. Different constructions firms are taken into consideration and their working conditions are analyzed. Learning the current situation of strength, Weakness, opportunity and Threats, will contribute in explaining the in general condition of construction firm which will help to make decision and progressively help for making strategy planning. SWOT Analysis provide an easier and quicker solution for determine the potential strength of the firm. On the basis of analysis Analytical Hierarchy Process (AHP) is being taken in initial stage for planning and the remaining work is integrated in the form of flowchart. Integrating the work in smaller sections will make easier to perform the task and help in determining the objectives of the paper. Comparison between different firm and their working scenario is done on which stability of the firm is decided. Multiple criteria decision making Analysis process is also included for various decisions taken during of the project. Over viewing of the project is done in a systematic manner in stage wise process which includes Analysis of strategy, Delay Analysis, Market Analysis, Environment Sustainable Design, Risk Management, Cost Comparison, Life Cycle Cost Analysis, and Competitors Analysis. All these are analyzed by using Super decision software for analysis in various stages. I found super decision making software for SWOT Analysis and obtain the required output.

Key Words: SWOT Analysis, AHP, MCDA

I. INTRODUCTION

SWOT Analysis:-

- **Strength**:-In build capacities of a construction firm to compete and grow strongly. One type of source for a construction firm which will useful for obtaining their desired objectives and goals.
- **Weakness**:- In build deficiencies which will affect the growth of a construction firm and its survival. Some short of deficiencies, limitations or defects which will affect the construction firm to keep away from achieving their objectives and goals.
- **Opportunity**:- The chances and opening towards growth of that particular firm and are created during analysis of strength and weakness.
- **Threats**:-These are being challenges which arise during swot analysis. They are sometimes considering at the initial stages of planning or they are obtaining during working condition and alternating solution has to be given to the firm. An undesirable condition which is being created while dealing with strength and weakness of the construction firm which will contribute towards damaging the strategic planning of the construction firm.

II. Literature Review

1. **"A RULE BASED SWOT ANALYSIS APPLICATION: A CASE STUDY FOR INDONESIAN HIGHER EDUCATION INSTITUTION" BY HusniThamrin^aEndang , WahyuPamungkas^b**

SWOT Analysis was first introduced by Albert Humphery during 1960-1970 when he used to work at Stanford University to develop methods which will contribute in companies in the United States in planning changes form. In the particular study firstly SWOT has being introduced. SWOT Analysis is an attempt to determine the strength and the weakness of the firm. Identification of opportunities for improvement and to find out the possible external difficulties that needs to be overcome. Description of SWOT Analysis will help for making strategic planning for long term and short term.

HOUBEN is belonging to the first team that attempted to automation of SWOT Analysis. Provision of knowledge based systems has been used. This includes a knowledge Engineer who has list of Questioner in his build system (automated). This was an initial study which needs more improvement.

Kurtilla

Introduction and use of decision making techniques was done in construction of building SWOT Analysis. Initially SWOT factors are arranged in a systematic manner. On the basis of importance they are categorized in various part and priority based data has been developed.

1. **“APPLICATION OF THE AHP IN PROJECT MANAGEMENT” BY Kamal M. Al- Harbi**

• **MCDA(Multiple Criteria Decision Making):-**

Various decisions have to taken by project owners for their benefits. Various elements are considered and factors occurring during the working process are determined. These factors are categorized in a systematic manner. Relationship of these factors is determined. Changes have to be made at the time of requirement. Activities of construction firm are show in an integrated process which contains hierarchal stages. Skill of determining these threats and solving them in initial stages will make ease to perform various task without any troubles and smooth working of the project can be achieve for success of the project.

Schuyler

The capability of making a sound decision important is an essential condition for the success of a construction firm. Multi criteria decision making problems focus on determining the problems.

- **Multi Criteria Decision Making:** - Situations which contains necessary conditions for different courses of action, which cannot be solved by any of the simple methods is termed as Multi Criteria Decision Making. It is a skill of any particular person to determine and provide a perfect solution for any type of situation which affects the working condition.

• **Analytical Hierarchy Process(AHP):-**

It is a process which deals with organizing the data in an integrating process and successively helps for analyzing the problem in detail. This process is representing in the form of a flowchart which describe the problem in a stage wise process. This makes the problem Easy to understand and deal with it. This process is simple, easy and quick to perform for any type of problem. It is useful in any type of field.

S = Strength
O = Opportunity

W = Weakness
T = Threats

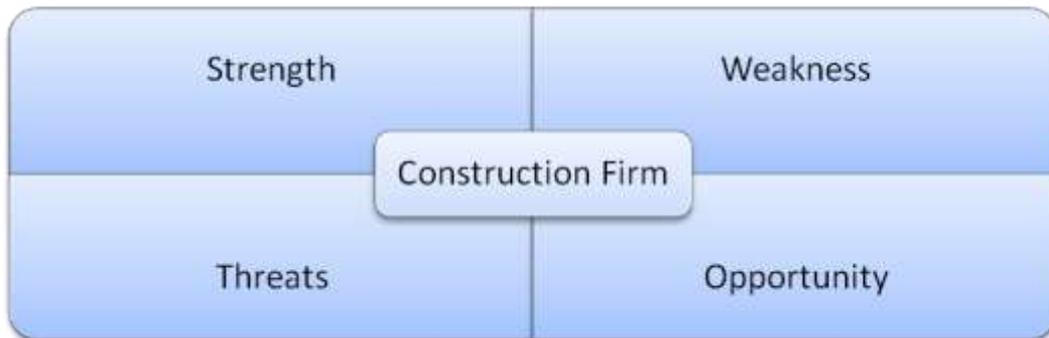


Figure 1 SWOT ANALYSIS STRUCTURE

III. METHODS AND DATA COLLECTION:-

Stepwise procedure has being followed which is in the form of flowchart.

- 1) SWOT ANALYSIS is carried out on Internal and external Environment of construction firm and analytical hierarchal method are followed by it.
- 2) These AHP methods integrate the whole process in a flowchart form which describes the activities of the construction firm.
- 3) Here I have done site visit on construction firm and on meeting of meeting and description questions are prepared and rating has being given to that particular firm to determine the stability of the construction firm.
- 4) Comparative analysis is done and data is prepared.

While dealing with AHP models they provide priority factors along with their importance with respect to other classifications. Prioritization mechanism can be obtain by using comparison matrix and by assigning comparison scale developed by Saaty (1980) to provide the relative importance to the describing classes.

Table 1 Classification of factors for comparison

Importance	Explanation
1	Equal Important
3	Moderate Important
5	Highly Important

❖ **Procedure to determine the Priority and comparison of different classes**

1. Number of comparison (n) = n
2. Comparison matrix = (n X n)
3. Eigen value =

a_{11}	a_{1n}
a_{21}	a_{2n}
a_{31}	a_{nn}

This will provide Priority Vector and importance of that factor with respect to other factor. Relationship between priority vector with respect to their weight or importance can be explained by using:

$$A = (\lambda_{max}) X w$$

Where w= Importance of the factor

4. Consistency Index (C.I) =
5. Consistency Ratio (C.R) =

Table2. Random index

n	1	2	3	4	5	6	7	8	9
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45



Figure 2 Methodology of SWOT Analysis

Table 3 General factor used to determine SWOT Analysis

Strength(S)		Weakness(W)	
1. Staff Structure (S1)		1. Working Condition (W1)	
2. Acceptability (S2)		2. Budget (W2)	
3. Profitability (S3)		3. Reliability of Data (W3)	
4. Specialty of project (S4)		4. Record Maintenance (W4)	
5. Surrounding Environment (S5)		5. Schedule of Work (W5)	
Opportunity(O)		Threats(T)	
1. Maintenance management (O1)		1. Conflicts (T1)	
2. Business strategy (O2)		2. Disputes (T2)	
3. Market Analysis (O3)		3. Variable policy (T3)	
4. New methods of Working (O4)		4. Creditors (T4)	
5. Future Thinking (O5)		5. Competitors Analysis (T5)	

1. SWOT Matrix of Gagan Nulife

		S	W	O	T	S	W	O	T	SUM	AVERAGE
Strength	S	1	3	3	5	0.54	0.56	0.58	0.36	2.03	0.54
Weakness	W	0.33	1	1	3	0.18	0.19	0.19	0.21	0.77	0.18
Opportunity	O	0.33	1	1	5	0.18	0.19	0.19	0.36	0.92	0.18
Threats	T	0.2	0.33	0.2	1	0.11	0.06	0.04	0.07	0.28	0.11
		1.87	5.33	5.20	14.00						

❖ Eigen value : 5.52 Consistency Index :0.5075 Consistency Ratio : 0.875

2. Matrix of Strength of Gagan Nulife

Strength		S1	S2	S3	S1	S2	S3	SUM	AVERAGE
Staff structure	S1	1	3	5	0.65	0.71	0.45	1.82	0.61
Acceptability	S2	0.33	1	5	0.22	0.24	0.45	0.91	0.30
Profitability	S3	0.2	0.2	1	0.13	0.05	0.09	0.27	0.09
		1.53	4.2	11					

❖ Eigen value : 5.29 Consistency Index :0.5075 Consistency Ratio : 0.875

3. Matrix for Weakness of Gagan Nulife

Weakness		W1	W2	W3	W1	W2	W3	SUM	AVERAGE
Reliability of data	W1	1	3	5	0.65	0.69	0.56	1.90	0.63
Record Maintenance	W2	0.33	1	3	0.22	0.23	0.33	0.78	0.26
Schedule of work	W3	0.2	0.3	1	0.13	0.08	0.11	0.32	0.11
		1.53	4.3	9					

❖ Eigen value : 3.26 Consistency Index :0.13 Consistency Ratio : 0.22

4. Matrix for Opportunity of Gagan Nulife

Opportunity		O1	O2	O3	O1	O2	O3	SUM	AVERAGE
Maintenance Management	O1	1	0.33	0.2	0.11	0.14	0.09	0.34	0.11
Business Strategy	O2	3	1	1	0.33	0.43	0.45	1.22	0.41
Market Analysis	O3	5	1	1	0.56	0.43	0.45	1.44	0.48
		9	2.33	2.2					

❖ Eigen value : 3.02

Consistency Index : 0.1

Consistency Ratio : 0.17

5. Matrix for Threats of Gagan Nulife

Threats		T1	T2	T3	T1	T2	T3	SUM	AVERAGE
Conflicts	T1	1	0.2	0.33	0.11	0.13	0.08	0.32	0.11
Creditors	T2	5	1	3	0.56	0.65	0.69	1.90	0.63
Competitors Analysis	T3	3	0.33	1	0.33	0.22	0.23	0.78	0.26
		9	1.53	4.33					

❖ Eigen value : 3.03

Consistency Index : 0.15

Consistency Ratio : 0.25

IV. Result

Overall synthesis of the report

Group	Priority	Factors	Importance with respect to Group	Overall Priority
Strength	0.54	Staff Structure	0.61	0.3294
		Acceptability	0.3	0.162
		Profitability	0.09	0.0486
Weakness	0.18	Reliability of Data	0.63	0.1134
		Record Maintenance	0.26	0.0468
		Schedule of Work	0.11	0.0198
Opportunity	0.18	Maintenance Management	0.11	0.0198
		Business Strategy	0.41	0.0738
		Market Analysis	0.48	0.0864
Threats	0.11	Conflicts	0.11	0.0121
		Creditors	0.63	0.0693
		Competitors Analysis	0.26	0.0286

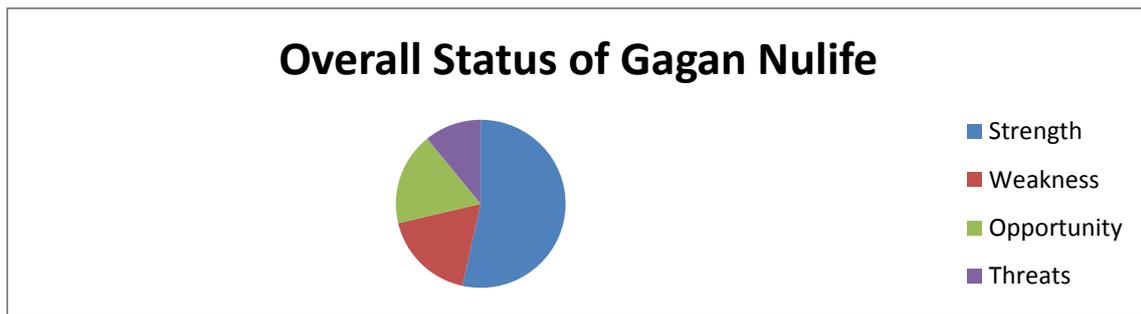


Figure 3 Synthesis of overall status of construction firm

On the basis of all above analysis we have evaluate strategic factors for a construction firm by using SWOT Analysis and AHP Methods. It has been concluded that

Group	Importance
Strength	54%
Weakness	18%
Opportunity	18%
Threats	11%

V. CONCLUSIONS

- *SWOT Analysis deals with the current status and provide a satisfactory result which is the basic need of the construction firm.*
- *Converting the problem in an AHP and dealing it is quite simple and beneficial. SWOT analysis could be helpful for a construction firm in at any stage of the construction firm.*
- *Consistency level for a construction firm is in essential condition. This provides stability for the construction firm.*
- *Integrating the problem in a systematic manner could be helpful for understanding the problem in deal.*
- *Multi Criteria Decision Analysis provides support to SWOT Analysis and converts the complex problem into easy.*
- *Combination of SWOT Analysis and AHP help to decide the drawbacks of the construction firm.*

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