Presentation of A Pattern of Managing Factors for Claiming Different Project Components in Construction Contracts

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Abstract

The occurrence of claims is an integral part of construction contracts, whose occurrence in the project is commonplace, and its settlement is often costly, time consuming and unpleasant, and its dark point, the way of managing and evaluating the effectiveness of the claim process and how answers it. Claim management in contracts is one of the important issues in project management, which is considered less serious in developing countries such as Iran, due to the urgency, scatter and complexity of projects, the need for an effective claim management system to provide proposed solutions. It seems necessary to get out of claims. In this regard, there are many factors that, after identifying the main factors of claiming in construction contracts, can be prioritized and determined by decision-making methods. Therefore, in this research, identification and evaluation of the most important reasons for claims in the contracts in the construction of Iran, as well as the proposed solutions in this field has been considered. For this purpose, after identifying the main elements of the claim in the contracts, they are categorized and determined by their importance by using the top-up method, and then solutions have been proposed for identified factors with a higher degree of importance.

Keywords: Claim Management, Claims Factors, Construction Contracts, Multi-Criteria Decision Making, Topsis Method, Proposed Solution.

Introduction

One of the factors that underlie the construction of the project is the design and engineering of the project from the legal point of view. The type of format in which the arrangements for the implementation of the project are laid out requires a detailed design and engineering, in order to implement it, the issuing party and the implementing party does not enter the smallest disadvantages and minimize the controversy between them.For the transfer and implementation of development projects, the legal format has been designed by the highest authority of the country is a document called "Peyman" (Talkhabi, 2013). The unique aspects of the contract in each project and the unifying group of each team are the common causes of the disagreements that occur; on the other hand, due to the complexity of the

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development projects, in some cases, all aspects of the treaty by the whole The factors involved in the project are not implemented in the best way; as a result of the differences, claims and contradictions in the contract documents. It is even possible that there is no agreement on the interpretation of the items referred to in the contract documents by the various stakeholders. Whatever the origin of the disagreement, however, the occurrence of a dispute in the construction industry is inevitable. The claim can be considered as a means of proving ownership, time, cost and discounts, losses and damages in projects(Vidogah and Ndekugri, 1997; Semple et al., 1994). In recent years, with increasing claims and disputes, a lot of key personnel of the project spend time solving them; therefore, identifying claims and awareness of sources that have potential for creating claims and disputes in different projects, and thus providing suggested solutions for eliminating these causes can help to avoid claims.

In general, claims are an integral part of construction contracts, which today is considered to be a common occurrence in projects. The concept of a claim in a contract is not a new concept, but its dark point is the way in which managers evaluate and assess the effectiveness of the claiming process and how to respond to it. Based on this view, extensive studies and studies have been conducted on various aspects of contractor claims management. For example, Vidago and Ancquigiri in 2001 divided the process of claim management into components such as claiming, notifying, reviewing, documenting, announcing and negotiating, and each of these factors is evaluated separately. Assam and Abdul Malik (Asem and Abdul-malak, 2002), in 2002 in another study, investigated claim management by using a comprehensive quality management tool and provided an optimal model for preventing and reducing claims in development contracts. In this regard, the study of Shakeri and the Ghorbani (Shakeri and Ghorbani, 2005) in 2005 emphasized the key role of proper and fair arrangement of contracts in order to reduce the claims of contractors and provide suggestions for eliminating existing deficiencies and changing approaches to contracting, Mora and Ticksira's study (Moura & Teixeira, 2007; Moura & Teixeira, 2005), in 2006 and 2007, on examining the most important factors in claiming development projects, with emphasis on factors such as accelerating and delaying the result of work, the cost of payments and financial amounts related to the project, the study of (Eckert et al., 2011) on choosing the right contractors

and identifying their claims can be mentioned by using the multi-criteria decision making methods (MADM)

Furthermore, we can mentioned Shakeri and Mousavi's 2012 research into the status and management of claims in the organizational structure of institutions and laws governing them, (Shakeri et al., 2013), in 2013 in relation to the examination of general terms of the treaty of Iran, the Identification of Contract Risks and Cases of Claims, the Study of the Ghorbani and Salahshor in 2013 in the field of evaluating financial claims of contractors in state-owned building company repair projects, (Mota et al., 2014), in 2014 on strategies prevention of claims risks by using He and Chen's multivariable decision-making method in 2015 in order to provide a model based on the control of the claim process to enable contractors in projects based on the FIDIC standard for analyzing the timing and cost of projects. Research literature in the context of this article shows that issues relating to the analysis of claims in construction contracts have always been one of the most challenging issues in contractual and contractual discussions. The study of this research shows that although the arguments of contractors' claims have been investigated in many researches, but with regard to the changing of bidding rules and the manner of concluding new contracts in Iran's construction projects, the claims of contractors are quite different from the past, which has not been evaluated in previous studies. Furthermore, a previous study shows that so far no comprehensive research has been carried out on prioritizing the main reasons for claiming contractors and providing solutions for their prevention. Accordingly, in the present article, it has been tried to first assess the most important reasons for claiming construction contracts by case studies in the development projects of Iran and then, by presenting a topsis model, a model for prioritizing identified causes using multi-criteria decision-making methods. Finally, suggestions should be presented, for the elimination or reduction of identified claims with greater significance in construction contracts.

Claim, the cause of its creation and management in the contract

In evaluating the success of development projects as one of the characteristics of each country's economic development, the three main parameters of time, cost, and quality are used as the golden triangle; however, other factors that appear invisible can play an important and prominent role; one of these invisible factors is claims (Shakeri and Mansouri, 2013). The increase in claims in construction projects has had an inverse relationship with the achievement of the main objectives of the project management (time, cost, and quality), so that increasing claims has negative effects on the three variables (Ketabi , 2009; Jergeas and Hartman, 1994; Trauner, 2009)

The word "claim" in the word means "request, dispute, and

litigation" (Zaneldin, 2006). The claim in the legal term is the act of establishing a right, that is, a right which has been denied or aggravated (Kingsfield and International, 2006). In fact, claiming to want something is based on a dispute. The word in the treaty is defined as the contractor's request for additional payment, the claim for damages against the breach of contract, the extension of the time of execution of the work or other demands that he believes is in accordance with the treaty. (Kingsfield, 2006)

In a comprehensive definition based on all definitions presented, claim is a demand for time and cost of surplus on a contract, which is requested based on the terms of the contract provisions or the upstream rules and regulations of the contract, which mainly there is a disagreement(Talkhabi, 2013) between the parties in the subject matter or in the amount; therefore, the claim must have a contractual basis. The use of the word "claim" creates a kind of emotional collision, which is usually charged with retaliation. The consequences of these claims are, in many cases, overlapping relationships, referring to arbitration or judicial proceedings with all its delays and costs(Shakeri and Mansouri, 2013).

According to research, each manager typically spends about 25 percent of his time solving tensions and disagreements, and in this regard, many project stakeholders, know claims and disputes from the most devastating events of projects construction (William , 1997). Indeed, preventing a claim is much easier and less costly than solving it. Sometimes, after the claim, there will inevitably be a lot of time to solve, and due to the time passage and the aging of the problems, several aspects have been added to it and added to the complexity of the project, which would impose more costs. In identifying the causes of the claim, it can be said that the ways of their prevention and management will be known, and in many cases, by adopting simple measures, a large part of the claims can be prevented (Mardi and Roud, 2010).

Claims in contract contracts may be created for various reasons. Zanneldin has divided the causes of claims into two parts: the direct causes (the cause of the claim that is immediately revealed) and the root (the origin of the claim) (Zaneldin, 2006). An example of a direct cause, changes by the employer and an example of a root cause, is the lack of information for the employer to make appropriate decisions.

The first step in overcoming the problem is to identify it well. Understanding these events may be useful in predicting future claims and in minimizing their impact on future similar projects by adopting strategies. In general, identification of claims in construction projects can be done by implementing a principled and three-step process, which the schematic is shown below in summary
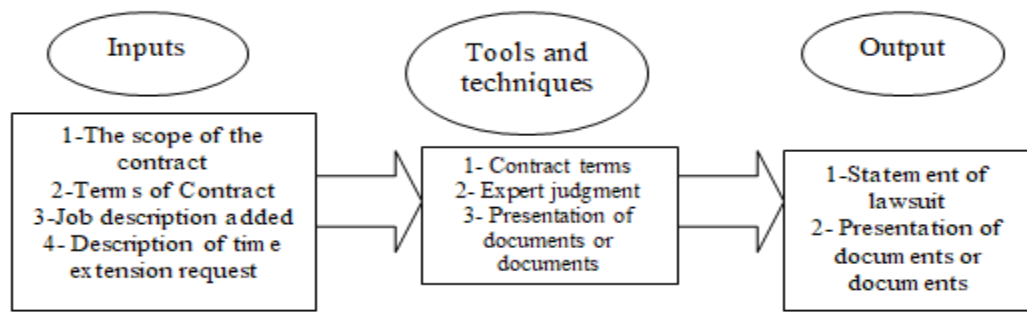
Figure 1: The process of identifying claims(Eckert et al., 2011; Ghorbani and Salahshour, 2014)

The process of claim management in development contracts, based on the standard definition of the Project Management Knowledge (PMBOK), has defined the management of the claim as follows: "A process that attempts to eliminate or prevent a claim, and in case of occurrence, react to it pays." The claim management guidelines according to this guide are divided into four stages: (1) claim identification, (2) claim quantitation, (3) claim planning and prevention, and (4) a way the resolution or claim resolution.

Methodology

Research methodology in the present study is that, firstly, through qualitative and descriptive studies, the reasons for claiming in construction contracts will be identified. Then, with a case study in the library and field resources related to the construction projects of Iran, priority was given to the most important reasons for claiming will be using multi-criteria decision-making methods. It should be noted that for this purpose, the views of construction experts in Iran are used quantitatively. In the analysis of data quantitatively, using the Topsis analysis method, all relevant indexes and their significance were identified. After providing a conceptual model on the preferred factors, proposed solutions have been suggested in order to get out of claims in contracts.

As stated, the main method used in this project for analyzing information is TOPSIS method and will be used in order to prioritize the most important factors affecting claims on construction contracts from different parts of the project and using expert selection software for weighting Different criteria. This method was first introduced in 1981 by Huang and Yun (Asgharpour, 2008) In this method, the m factor or option is evaluated by a person or group of decision-makers. This technique is based on the notion that each selected factor should have the least distance with the ideal factor (most important) and the greatest distance to the ideal factor (the least important factor), in other words, in this method, the distance between a factor and the positive and negative factors are measured and this is a criterion for ranking and prioritizing factors (Asgharpour, 2008; Khaki, 2008).

The TOPSIS process uses a pairwise comparison technique to select; that means, it chooses the option with the highest score to compare and select two options based on the number of values (Table 1) for deciding and selecting an option, and the preference for each Gets another for each criterion, and after applying the weight of the criteria, with the help of techniques in the results (Habibi et al., 2014).

Table 1: Valuation of the Comparative Prediction Severity of Indicators to one another in Topsis Analysis(Habibi, 2014)

explain	Comparison of i with j	Preference
The index i is equal to and equal to j, and they are not prioritized	Equal importance	1
The option or index i is more important than j.	Relatively more important	3
The option or index i is more important than j.	More importance	5
The option or index i has a much higher priority than j.	Very much important	7
The option or index i is not entirely j more important and comparable to j.	Absolutely important	9
Index i is absolutely more important than j and has a very special value	special importance	10
Indicates the middle values between preferred values. For example, 8 indicates a significance greater than 7 and lower than 9 for i relative to j.	Interstitial preference	8&6&4&2

Paired comparisons are based on how much element A is more important than element B. In the AHP analysis process, the elements of each level are compared to their corresponding element at the higher level in a pair and their weight is calculated, which is called relative weights. Then, by combining relative

weights, the final weight of each option is determined (absolute weight). The final weight of the product is obtained by the importance of the criteria in the weight of the options (Asgharpour, 2008; Khaki, 2008). Paired comparisons form a study of a matrix of relative rank in each hierarchical level. The

number of matrices depends on the number of elements in each level. The matrix rating in each level is related to the number of elements in the lower level. After forming all matrices and performing paired comparisons, special vectors or relative weights (relative degrees of elemental elements), final weights, and the maximum specific value (λ_max) are calculated for each matrix (Habibi, 2014).

Analysis of Data

Categorization of Claims in the General Contract for the Construction of the country of Iran

After thorough review of documentary, library and field studies, as well as interviews with various project managers in contracting development projects in Iran, the creation of a claim for each of the various pillars of the contract (employer, consultant, and contractor) can be due to the emergence of six main factors (1) change and acceleration (in contracts, materials, maps, rules, schedules, methods of construction and acceleration at the start of work before complete design, operation before completion), (2) delays (In the delivery of land, delivery of goods, obtaining a permit, payment), (3) limitation (in the provision of financial, human, equipment and machinery), (4) weakness (in Ned Writing the necessary information, inexperience factor), (5) interpretation (of the contract, the letter, list price) and (6) events (such as floods, earthquakes, sanctions)

Furthermore, allegations made by parties to an agreement can be divided into three general categories: (1) the contractor's claim against the employer, (2) the employer's claim against the contractor, and (3) the employer's claim against the counselor. In order to determine whether each claim is in any of the categories above, a number from 1 to 8 is assigned to them, indicating the main cause of its occurrence.

According to studies, generally, the factors behind the creation of claims by the contractor against the employer, the employer against the contractor and the employer against the consultant are identified 19, 7, and 9, respectively, in the following table, each of these items has been described in relation to the relevant variable. In addition, in order to screen the identified key factors, the average of the items has been tested and the factors with higher degree of importance for selection as the final factors in the analysis method have been extracted. IN the table 2 the most important criteria and options have been presented as the main factors for creating different claims between the project components in Iran's construction contracts.

Table 2: Criteria and Options for Creating Different Claims between Project Elements in Construction Contracts of Iran

| Indicator	Item description (relevant variable)	main factor
A1	Changing schedule on the employer's order (change)	Contractor Claims on Employer (A)
A2	Changes in government laws and regulations (change)	
A3	Changing key people of employer and counselor (change)	
A4	Change in construction methods by employer or consultant (change)	
A5	Order to expedite and change the work for early opening (change)	
A6	Getting started before completing the entire project design and early exploitation of parts of the project for political reasons (change)	
A7	Delay in employer's payments and obligations (Delay)	
A8	Multiple disruptions and disruptions lead to disruption of the contractor's execution units (delay)	
A9	Delays in land delivery, aggregates of executive plans for each stage of work in the employer's commitment, and in obtaining the necessary permits for the execution of each stage of work (road, municipality, permission) (delay)	
A10	Acute economic conditions of the entire society at run time for reasons such as sanctions (restrictions)	
A11	Lack of appropriate materials, equipment and machinery appropriate and skilled manpower in the area (restriction)	
A12	Low early term of contract and ambiguities and deficiencies in the contract (weakness)	
A13	Documentary and under-experience problems Employer Factors (weakness)	
A14	Lack of proper coordination and coordination of the employer's representative with the contractor to identify and solve problems and barriers (weaknesses)	
A15	Checking and confirming the duration of the planned delay for the contractor at the end of the initial term of the contract (interpretation)	
A16	Failure to pay the actual cost of equipping the workshop during the extended period and the manner in which the equipment for the workshop was paid for in the initial period of the contract (interpretation)	
A17	Change in resources and mines. Materials, materials and technical specifications of materials (change)	
A18	Multilateral interpretation of items subcontracting, instructions, and sectorial statements (Interpretation)	
A19	Accidents and accidents due to weather and environmental conditions during the duration of the project (such as floods, earthquakes) (accidents)	
B1	Delay in performing the work according to the project schedule (delay)	Employer claims on contractor (B)
B2	Delays in land delivery, equipping and starting operations of the workshop (delay)	
B3	Lack of supplies, skilled manpower, machinery and equipment supplied at various points (restrictions)	
B4	The inexperience and weakness of the technical factors involved in the project (weakness)	

B5	Financial and liquidity problems during work (weakness)	
B6	Defects and lack of quality in implemented tasks and weaknesses in project management (weakness)	
B7	Weakness in responding to correspondences made in reasonable time (weakness)	
C1	Inaccuracy in the type of materials considered in accordance with the conditions of the region (change)	Employer claims on advisor (C)
C2	Delay in confirming and sending the meeting's form and the face of the contractor's terms of delivery and the required agenda (delay)	
C3	Delay in responding to correspondence made in reasonable time (delay)	
C4	Failure to estimate the amount of the contract and preparation of project documentation (Delay)	
C5	Lack of human resources (limitation)	
C6	Weakness in locating and designing the project (weakness)	
C7	Weakness in monitoring quality of work (weakness)	
C8	Weakness in contract adjustment (weakness)	
C9	Weakness is considered in the implementation procedures and the choice of the type of contract system for project implementation (weakness)	

After identifying the most important factors in claiming from the various components of the project in the construction contracts, the importance of their priority has been examined. For this purpose, factors have been analyzed and prioritized by using Topsis analysis method as one of the multi-criteria decision-making methods in prioritizing affiliated indices in a decision pattern. To do this, the following steps have been taken to reach the decision-making priorities of the TOPSIS procedure, respectively.

Run the Topsis Method Pattern to prioritize claims identified in the contracts

- *Step 1: Create a Decision Matrix*

At this stage, after forming the decision tree hierarchy (as shown in Fig. 2), the matrix of paired comparison matrices (as in Table 3) is formed that in the row of those options and in the column of those indices, and the weight of each Indicators are presented at the end line and at the intersection of the rows and columns, the importance of each responder for each of the options is given according to the relevant index.
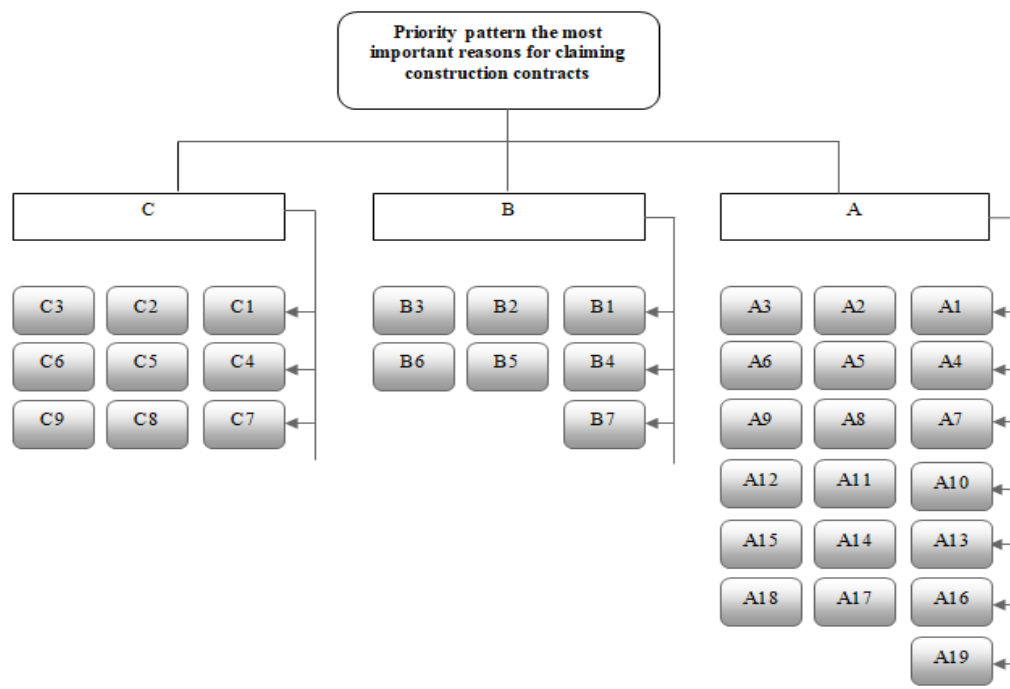
Figure 2: Topsis hierarchy pattern on the factors and sub-elements of claims in construction contracts

Table 3: Decision Making Matrix (N)

Indices / Options	C_1	C_2	…	C_n
A_1	r_{11}	r_{12}	…	r_{1n}
A_2	r_{21}	r_{22}	…	r_{2n}

⋮	⋮	⋮		⋮
A_m	r_{m1}	r_{m2}	…	r_{mn}
W_j	W_1	W_2	…	W_n

r_{ij} The i-th option rating is in the j index and w_j the j-index is the weight. It should be noted that the decision matrix is based on the average of the opinions of all experts and experts present in the process of conducting the research.

- *Step 2: Normalize the decision matrix (normalize)*

In order to make a comparison, the decision matrix formed in the previous step is transformed into a normalized matrix or N1 matrix using equation 1.

$$n_{ij} = \frac{r_{ij}}{\sqrt{\sum_{i=1}^{m} r_{ij}^2}}$$
(1)

- *Step 3: Obtain a matrix of mosaic*

In this level, in order to obtain a non-equilibrium matrix (V), the doped matrix (derived from the second step, ie, the matrix N1) in a square matrix (wn * n) whose elements are the main diameter of the weights of the indices and other its elements are zero, multiplied by relation 2.

$$V = N_1 \times w_{n \times n}$$
(2)

- *Step 4: Identify the positive and negative ideal factor*

In this level, the options that have been identified by the respondents as the most important factor and the least important factors should be identified. In other words, for positive, positive, positive ideals, the largest value is V and the negative ideal is the smallest value of V, also for the negative indexes, the positive ideals of the smallest value of V and the negative ideal of the largest value of V in accordance with the following determined.

(3) Positive Ideal:

$$A^+ = \left\{ \left(\max_i V_{ij} \mid j \in J \right), \left(\min_i V_{ij} \mid j \in J' \right) \mid i = 1,2,...,m \right\} = \left\{ V_1^+, V_2^+, ..., V_n^+ \right\}$$

(4) Negative Ideal:

$$A^- = \left\{ \left(\min_i V_{ij} \mid j \in J \right), \left(\max_i V_{ij} \mid j \in J' \right) \mid i = 1,2,...,m \right\} = \left\{ V_1^-, V_2^-, ..., V_n^- \right\}$$

In these relationships, J is positive indicators and J 'are negative indicators.

After the previous steps, at this level, the results of the positive and negative ideal solution for each of the indicators identified in the previous step are determined.

- *Step Five: Calculate the distance from the positive and negative ideal for criteria and options.*

At this level, the distance between each of the options is determined from positive ideals and negative ideals in accordance with relations 5 and 6.

(5) The distance of Ith option from a positive ideal:

$$d_i^+ = \sqrt{\sum_{j=1}^{n} \left(V_{ij} - V_j^+ \right)^2} \;;\; i = 1,2,...,m$$

(6) The distance of Ith option from the negative ideal:

$$d_i^- = \sqrt{\sum_{j=1}^{n} \left(V_{ij} - V_j^- \right)^2} \;;\; i = 1,2,...,m$$

It should be noticed that the results of each of the main factors and the identified indicators or sub-factors have been presented in Table 4 to the positive and negative ideals. Also, in Fig. 3 (a, and b), these results have been shown for the main factors and related sub-factors.

Table 4: The distance (di) of the positive ideal (di +) and negative (di-) and the closeness to ideal (CL) for the criteria and options.

Main factor	d_i^+	d_i^-	CL value	Main sub	d_i^+	d_i^-	CL value
A	0.073	0.102	0.584	A1	0.026	0.037	0.587302
				A2	0.026	0.035	0.57377
				A3	0.022	0.041	0.650794
				A4	0.019	0.05	0.724638
				A5	0.028	0.039	0.58209
				A6	0.027	0.031	0.534483
				A7	0.019	0.045	0.703125
				A8	0.046	0.039	0.458824
				A9	0.024	0.046	0.657143
				A10	0.044	0.038	0.463415
				A11	0.028	0.043	0.605634
				A12	0.0184	0.036	0.661765
				A13	0.038	0.029	0.432836
				A14	0.052	0.028	0.35
				A15	0.024	0.041	0.630769
				A16	0.023	0.048	0.676056
				A17	0.024	0.041	0.630769
				A18	0.029	0.037	0.560606
				A19	0.018	0.012	0.4
B	0.093	0.088	0.486	B1	0.021	0.052	0.712329
				B2	0.035	0.028	0.44444
				B3	0.032	0.029	0.47541
				B4	0.019	0.038	0.666667

				B5	0.017	0.043	0.716667
				B6	0.016	0.049	0.753846
				B7	0.038	0.034	0.472222
C	0.113	0.083	0.424	C1	0.029	0.023	0.442308
				C2	0.039	0.026	0.4
				C3	0.041	0.037	0.474359

|				C4	0.031	0.036	0.537313
				C5	0.025	0.05	0.66667
				C6	0.02	0.047	0.701493
				C7	0.019	0.046	0.707692
				C8	0.028	0.039	0.58209
				C9	0.014	0.051	0.784615
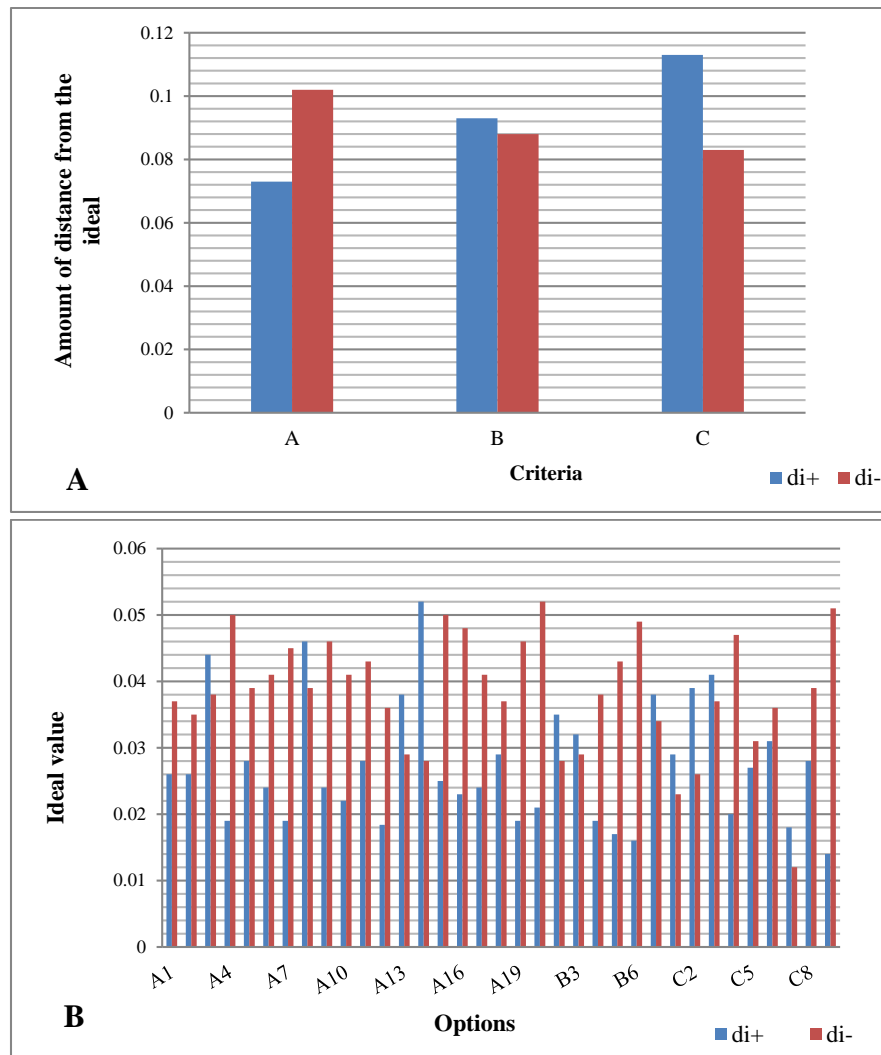
Figure 3- View the result of the· dealism of the criteria identified in the prioritization pattern of the effective criteria for claiming in the construction projects; (a) the main factors (criteria); (b) the relevant sub-factors (options)

- *Step 6: Calculate the degree of proximity to the ideal of positive and negative criteria and options.*

At this stage, the closeness of each of the options to the positive ideal and negative ideal (CL) is obtained according to equation (7).

$$CL_i = \frac{d_i^-}{d_i^- + d_i^+} \qquad (7)$$

In Table 2, the relevant CL values are given for each of the main factors and indicators or sub-identities identified in the decision pattern. In addition, in Fig. 4 (a and b), these results have been shown for the underlying factors and related factors, respectively.

(A)
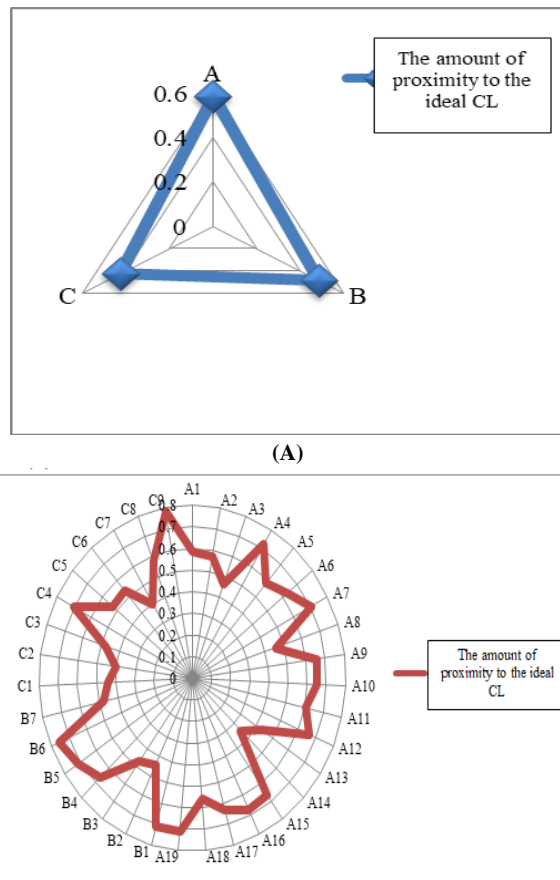
(B)

Figure 4: Showing the result of the closeness to the ideal of the criteria identified in the prioritization pattern of the effective criteria for claiming in the construction projects; (a) the main factors (criteria); (b) the relevant sub-factors (options)

- *Step 7: Ranking the options*

At this stage, all identified criteria and options are ranked based on the CL value; in other words, each criterion and option that has a higher CL will achieve a better rank in the decision-making model. In Table 4, the ranking of the criteria and options identified in the decision-making model has been shown based on the first five ranks about identifying the most important criteria effective in claim in construction contracts. According to this point that the first five ranks in this model are more important in the decision-making process, so the proposed solutions based on these options have been presented in Table 5.

Table 5: Ranking the identified criteria and options and presenting proposed solutions for preferred options.

Rank	Index	The description of the item	Proposed solution
1	C9	The weakness has been considered in the executed methods and the choice of the type of contractual system for project execution (weakness)	The negligence of a consultant in the process of execution of a contract that results in disorder in the executive operation or contractor's duties is considered among the disciplinary violations and the consultant is deprived up to six months. According to this fact that most people who work in designing work less on executive tasks, the best way to prevent weaknesses in the executed methods considered by the consultant is to control the drawings and tender documents by senior engineers with an experience according to the work type.
2	B6	Defect and lack of quality in executed tasks and the weaknesses in project management (weakness)	The following cases are proposed to prevent claim due to the great importance of this issue: 1 -Pay attention and importance to the quality control issues in projects with greater intensity by continuously filling out the forms and standards developed in this regard and following up them until achieving the result 2 -Forecasting clear and obvious crimes in the contract for items that the defect in executing them causes to drop the quality of the project.
3	A4	Change in construction methods by the order of the employer or consultant (change)	More precision and study before the tender process and the use of experienced and knowledgeable forces in designing and estimating can prevent the occurrence of this claim.
4	B5	Financial and liquidity problems during work (weakness)	Regular meetings with specific time cycles and preparation of minutes about all important issues of the project and giving the deadline to the contractor to solve existing problems and issues are among important factors in solving problems and deficiencies.
5	B1	Delay in performing the work according to the project's approved schedule (delay)	Establishing a project control unit by the consultant at the workshop and monitoring all items at the end of each day, week, and month and requesting continuous weekly meetings are among cases that can prevent some delays in the project's approved schedule.

6	A19	Natural disasters, accidents, and events caused by weather and environmental conditions during the duration of executing the project (such as floods, earthquakes) (accidents)	In accordance with Article 43, the general conditions of a treaty, war, earthquake, flood, fire, storm and similar events outside the control of the two parties to the contract that occur in the area of executing the work, and make it impossible for the contractor to continue the work is among the natural disasters. In the event of a natural disaster, neither party is responsible for damages imposed on the other party resulting from these disasters and events. Therefore, in order to solve and eliminate the claim from the contractor, it is better that the responsibility of whole insurance of the risk of the workshop is taken by the contractor in the private conditions of the contract with consideration of the definitive amount, in order not to raise a claim. In cases where the continuation of special conditions and inappropriate atmospheric conditions that are not predictable in the project schedule and are outside the control of the contractor, the employer should only consider the happened delays as permitted delays and extend the duration of the project in the same amount of time.
7	A7	Delay in Employer's Payments and Financial Obligations (Delay)	In conventional contracts for the delay in payments by the employer, the contractor is only authorized to extend the duration of the contract, but the unpaid fund's interest on the contractor, despite the costs of the investment that the contractor has incurred and also the costs associated with increased time is not paid to him. Due to delays in payments, the planning of contractor's resources may also change, and he will have to obtain some resources more expensive due to this delay. Also, the contractor may have the reduction of the efficiency and productivity due to delay in payments. It is suggested that in new contracts, a right about delay in payments to be considered for the contractor, and this matter requires the formulation of a circular and unit instruction that is communicated to the executive bodies by the strategic oversight organization of the president so that the contractor, if he pays out his investment for the project, will ultimately benefit, in addition to the benefit of the project and also the employer knows if has delay in payments, he has to pay the compensation of it.
8	C4	The negligence to estimate the values of the contract and preparation of project documentations (Delay)	The following cases are proposed to prevent this claim: 1 -The use of engineers with an experience of the desired work 2 .The use of experienced engineers who have full knowledge of the circulars and lists 3 .Control the initial estimation by other persons
9	A16	Failure to pay the actual cost of equipping the workshop during the permitted extended period and the way of the payment of the items for equipping the workshop for in the initial period of the contract (interpretation)	In order to prevent claims regarding the costs of equipping and dismantling the workshop after the termination of the initial period of the contract and at the time of the permitted delays, it is better to consider the monthly amount in the private conditions. The works that are integral parts of the operation are subjects of the contract and there is no item in the lists inserted in the treaty and contract to pay for them, it is better to include in the tender documents as starred items so that the participants in the tender act with full awareness of the bid price. Otherwise, at the time of the execution, the employer's agreement cycle of contractor's estimate the consultant's examination and communicate it to the employer for the new operation, will spend a lot of time of the project.
10	A15	Examining and confirming the duration of the considered delays for the contractor at the end of the initial term of the contract (interpretation)	The cases that the contractor has an objection to the length of the permitted considered delays for him are usually in the following four cases: 1 -Claiming the amount of execution time needed to increase the amounts up to 25% 2 -Claiming the delay in execution time due to non-payment of due claims 3 -Claiming the delay caused by the delivery of materials in the employer's commitment 4 .Claiming the repeated stops caused by the controversy If the President's Strategic Planning and Controlling Deputy, Circulars are issued that clearly express the way to calculate the change in the duration of the contract about any of the above cases, the claim will be minimized in this regard.
11	B4	The inexperience and weakness of the technical factors involved in the project (weakness)	Meritocracy and preventing any interference by influential individuals to employ low experienced forces in the key sectors of the project can prevent this claim.
12	A12	Low early term of contract and ambiguities and deficiencies available in the contract (weakness)	Accuracy in the required tests on the context of the area that work is executing, the accuracy in estimating the amounts enclosed to the contract, the elimination of the opponents before the start of the work, the provision of materials in the employer's commitment before the start of the work, the full allocation of the required materials to execute the plan, are all factors that can make the contractor able to do the work in time and in the initial term of the contract. According to the fact that civil engineers are not lawyers and contracts have technical and legal parts, and in this regard, lawyers are not

13	A9	Delay in the delivery of land, materials, executive maps of each stage of work in the employer's commitment, and in obtaining the necessary permits for the execution of each stage of work (The permits of Road Administration, Municipality) (Delay)	One month is much time for delivery the workshop by the contractor, and it is proposed that a one-month is decreased to ten-day and offenses be considered for an interval of ten to thirty days, and in case of non-delivery of land after one month, the contract shall be terminated in accordance with Article 46 of the General Conditions of the Contract. Precision in measuring factors such as weather conditions, the distance of the transportation of materials, and how to access the materials intended for the project by the consultant at the estimated time can prevent this problem. It is suggested for this work that special forms are designed to include these items and be available to the estimating consultants so that the consultant, after the completion of the estimate, includes all operations in them that their executions are subject to the permissions required by the relevant departments. And sends it to the employer. To enable the employer to obtain the necessary permissions from the relevant agencies and departments before or at the current of other works so that the delay does not create in the project's process.
14	A10	Acute economic conditions of the entire society at execution time for reasons such as sanctions (limitation)	Since there is a distance between the time the tender offer is sent to the employer and concluding the contract and project execution, if during this time the price of the materials and goods required for the project have the severe changes or the change in the customs tariff of the imported goods that cannot be predicted to be announced then these cases cause to create the claim for losses from contractors .Providing temporary adjustment indices until the finalization of definitive indices can be used temporarily to delight contractors and advance the works.
15	A6	The start of the work before completing the entire project design and early exploitation of incomplete parts of the project for political reasons (change)	In order to remove this claim, it seems necessary for the President's strategic planning and control deputy to act to control of the final approval and control of the plans, so that before the final design of the whole sections of the plan, the possibility to start prematurely for political reasons does is not provided by executive devices. In this regard, there is no right for the contractor, but due to the occurrence of some problems during the continuation of work for them; it seems that the employer must compensate for their defective rights because their decision had been the cause of these problems.

Discussion and Examination of the Findings

The results of the ranking of different criteria as the main factors in claiming in construction contracts with the topsis technique indicate that the criteria of the contractor's claiming factors on the employer have priority over two other criteria. Also, the results of ranking the various options as the main sub factors of the claim in construction contracts with the topsis technique, indicate that items such as "weakness in the considered methods of execution and the choice of the type of contractual system for project execution (weakness)," defect and lack of quality in executed works and weaknesses in project management (weakness), "" Change in construction methods by the order of the employer or consultant (change), "Financial and liquidity problems during work (weakness)," Delay in doing work according to the project's approved schedule (Delay), "natural disasters and accidents and events caused by weather and environmental conditions during the duration of the project execution (such as the flood , Earthquake) (events) "are raised as the most important factors in claiming in construction contracts.

Based on each of the mentioned cases, after needed field studies, proposed solutions have been presented to go out of the claims made in the construction contracts, and it has been concluded that it is certainly easier and cheaper to avoid a claim than to solve it. Sometimes, after the claim is made, a lot of time will be spent to solve it, and due to the time passage and the aging of the problems, several aspects are added to it and become more complicated; thus, it imposes more costs on the project. In the case of recognizing the causes of the claim, it can be said that the ways of preventing them will also be recognized, and in many cases, by adopting simple measures, a large part of the claims can be prevented.

Conclusion

Construction contracts determine the cycle of communication between the parties of the contract and should be executed by parties. Today, large-scale construction projects are technologically and technically complex and include high level organizations. Due to the existence of these organizations, in order to participate actively and in high level in the elements of the contract and progress of the works, the project requires a contract, which states the requirements, scope of powers, description of duties, contractual obligations and responsibilities of the parties in different technical and administrative, legal and financial dimensions completely, comprehensively and unambiguously, in order to avoid future disputes. Currently, the preparation and set of the principles of the contract is considered as one of the most important factors in the success of the projects, so that, in a principled contract, the parties of the contract are encouraged to continue to operate with each other in a form of a team with a common objective but without conflicting interests and with fair distribution of the risk. In Iran, because construction contracts in constructive projects are unilateral in most cases, and almost all of the provisions are written in favor of the employer,

and the employer has the freedom to accept or reject the contractor's claims, so employers prefer to use their authorities and ignore claim to save on project costs. Obviously, this matter will undermine the financial context of the contractors, and their motivation will be eliminated in order to function properly and in a standard way and instead, during the execution of the project, many controversies are created between the parties of the contract, which sometimes leads to the stop of operations and wasting the time and extend the time to perform the project.

Considering the fact that in this paper, it was tried to evaluate the most important factors affecting the claims in construction contracts using Topsis method as one of the multi-criteria decision-making methods, the significant results were obtained in this regard. For example, the results of ranking various options as the main sub factors of occurring the claim in construction contracts with the Topsis technique indicate that items such as "weakness in the considered execution methods and the choice of the type of contractual system for project execution (weakness) , "defect and lack of quality in executed works and weaknesses in project management (weaknesses)", "Change in construction methods to the order of the employer or the consultant (change)", financial and liquidity problems during the work (weakness), "Delay In carrying out the work in accordance with the project's approved schedule by the project (Delay), "natural disasters and accidents and events caused by the climatic and environmental conditions during the duration of the project (such as flood, earthquake) (events) "are raised as the most important factors in claiming in construction contracts. According to the presentation of the prioritization model in the present study, in the future projects, the proposed model in this study can be considered as a headline about the factors of occurring the claiming in construction contracts and needed actions should be taken using the raised suggestions for going out of this matter and solving the identified claims.

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