

## EXTENDED ABSTRACT

# Identification and Analysis of Common Claims between Consultants and Contractors in EPC Contracts by AHP Method

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## 1. Introduction

EPC project refers to projects in which all activities including project design, purchase of required items, installation and execution and pre-commissioning are entirely the responsibility of the contractor so that the contractor after the contract and within the specified time, must deliver the project in full to the employer. The employer, by facilitating his work and entrusting all the work to the contractor, practically plays the managerial and supervisory role of the project (Bakhari, 2015).

Today, Iranian employers and contractors using the EPC method in several large and small projects, need to analyze previous experiences to correct the problems of this method and develop it in future projects. In this research, first, by identifying the common lawsuits between the group of consulting engineers and contractors in the country's construction projects and ranking the existing lawsuits, it analyzes and examines it so that it can provide solutions for reforming the country's technical executive system by carefully examining the influential factors.

## 2. Methodology

The main indicators in this research include erroneous factors in the tender documents, Failure to fulfill the obligations between the employer and the contractor, changes in the employer's demands and changes due to external factors. So that each of mentioned indicators includes sub-indicators or sub-criteria (Shen et al., 2017).

After determining the indices and sub-indices, in order to rank the main indices, the pair comparison matrix corresponding to the main indices import to the Expert Choice software and then the software calculates their weight based on the AHP algorithm. According to the obtained results, it was found that the compatibility coefficient of the model is 0.05 and this value is less than 0.1, so the system is compatible. Due to system compatibility, data related to pairwise comparison is imported into Expert Choice software and the weight of each component is calculated.

Then, in the next steps, the sub-branches of the main indicators are evaluated by the mentioned method and their weights are calculated by the software

## 3. Results and discussion

The criterion of non-fulfillment of contractual obligations between of employer and consultant with weight (0.523) is the most important criterion in analyzing in EPC contracts of construction projects. The criteria of factors of change in employer demands, changes due to factors External and errors made in the tender

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documents and correspondence with weights of 0.261, 0.126 and 0.089, respectively, are in the next ranks (Table 1).

**Table 1.** Weight of main indices

indices	weight
erroneous factors in the tender documents	0.089
Failure to fulfill the obligations between the employer and the contractor	0.523
changes in the employer's demands	0.211
changes due to external factors	0.126

sub-indices affecting the main index of non-fulfillment of contractual obligations of employer and consultant, are such as delay in approval of plans and disruption of the ordering and purchasing process (5.6%), claims arising from non-fulfillment of obligations of employer (5.9%), Delay of the employer in concluding and notifying the contract (11.3%), non-issuance of necessary permits for the implementation of each section (11.5%), lack or delay of delivery of materials and machinery of the employer and exclusive materials of the government or their defective (3.25%) and non-payment of statements of statements or other financial obligations of the employer (40.4%).

#### 4. Conclusions

Finally, the results of TOPSIS analysis showed that the proposal of "approval of the status report by the project manager and consultant and follow-up of the project manager for fast administrative correspondence" has the highest rank among the other four solutions. Other corrective suggestions in order of priority are:

- Examining the contractor's documents, including the agenda, meeting minutes and status minutes and reducing the number of status verification steps
- Prepare a plan in case of force majeure and make the designers more familiar with the executive constraints in the projects and have decisive opinions in critical situations.
- Modification of criteria for selecting contractors in terms of financial capabilities, technical and executive knowledge, related work experience
- Increasing the technical knowledge of the employer representative in coordination between consulting engineers and contractors, timely solution of technical and executive problems of the project

#### 5. References

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