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Stakeholder network assessment projects to assess their ability to plan claims using social network analysis.

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ABSTRACT: After the process of holding tenders and concluding contracts and agreements and forming a project management team, the obligations, responsibilities, and authorities of each of the effective factors or project stakeholders will be identified and separated thematically. Of course, it should be noted that the volume of many of these obligations, responsibilities, and authorities in each project is similar and the same. The uncertain and complex situation of claims in construction projects that will lead to financial burden and prolongation of work, especially from the middle of the project onwards, requires that all project stakeholders, to manage potential claims in the project, as expected and other stakeholders have a clear approach. In this study, after identifying the claims and rooting out the concepts related to the claim as well as how to manage it in contracts, to identify and evaluate the project stakeholders and their ability to measure in the claim plan using stakeholder communication network analysis in a case study. On the other hand, by calculating the stakeholder centrality measure in each claim examined and summarizing them, the most important stakeholders and the relationship between them were identified that can be the basis of planning and management. Therefore, using network communication analysis between project stakeholders and common claims, it is possible to identify the effectiveness of each stakeholder and take the necessary measures to manage the claims.

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1- Introduction

Although the probability of claims cannot be eliminated in any project, identifying the main causes and sources of claims can be largely prevented from occurring in the project [1]. Clearly, the claim can be considered as arising from two main sources. The claim is either due to the behavior of the parties involved in the project or is due to environmental conditions that upset the balance in the project situation. Claims arising from environmental conditions are in principle uncontrollable by the project team and only their effects on the project should be properly managed. Considering that the stakeholders of construction projects have a fundamental role in the occurrence of project goals and especially the possible claims of the parties to the contract, so one of the tasks of the project manager's office is to evaluate the project stakeholders to assess their ability to make a claim. The present study intends to use the concept of social media analysis to determine the most effective project beneficiary in potential project claims. Thus, first, using a questionnaire and statistical analysis, the most important claims in construction industry projects are identified, and then based on the identified claims and stakeholders in each project, using social media analysis, the most effective beneficiaries in the event. And claim management is identified in the project.

2- Methodology

The research method is survey-descriptive and analytical and the present research is a case study and the method of data collection is through questionnaires, interviews and studies of documents and expert meetings and for data processing and analysis of the least squares method. Partial and social network analysis methods are used. It should be noted that in identifying the common claims of construction projects, the method of qualitative analysis using documents and interviews with elites and a questionnaire has been used [2]. Then, the project stakeholders were identified by reviewing the documents and using interviews and questionnaires, and in the last stage, using the social network analysis method, the relationships between the project stakeholders and conventional claims were examined and evaluated in such a way that they were identified based on stakeholders. Claims are determined by the number of each claim of the network of stakeholders associated with this claim, and in each network the center of each stakeholder is determined, and from the sum of their centrality it is determined which stakeholder has the greatest effect on the claim.

3- Results and Discussion

Stakeholder evaluation of construction projects to manage

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claims due to the involvement of various stakeholders is relatively complex and at the same time inevitable. The high density of the network in the study indicates a large and complex relationship between stakeholders that by knowing the value of these relationships can make possible claims and help the project management in evaluating the network of stakeholders of construction projects to assess the ability They claimed in management. Stephen Prick [3] in his book "Analysis of Social Networks in Construction" seeks access to methods in which social network analysis (SNA) can be used to observe, monitor, and analyze systems and the relationships created between Stakeholders used in the construction project. Zian et al. [4]. conducted a study on the use of social network analysis (SNA) in the management of construction projects and believed that the analysis of social networks provides a good perspective in various areas of construction projects and valuable information in Providing the project manager with the areas of risk and financial management and making possible claims. Arbabi, Vali Nawazi and Sobihieh [5] in their research examined the function of social network analysis in risk management with the approach of stakeholders in the Tehran Metro project and according to the different stakeholders involved in metro projects, the patterns and social relations of these stakeholders, the ratio Stakeholders identified critical risks by applying the criteria of social media analysis method in risk management. In an article by Park et al. [6] on the participation of Korean contractors in international projects, they used social media analysis. For this purpose, participation files in 389 overseas projects implemented by Korean companies since 1990 were collected and classified according to the company's rank, type of participation and level of performance. The authors sought to link the network created to corporate profitability, and the SNA results show a set of obvious tendencies in developing collaborative networks to perform better in high-risk project situations.

Compared to the research that has been done on how to manage claims in construction projects so far, prioritizing stakeholders and recognizing the items used in this regard scientifically and using mathematical methods and selecting the optimal model, evaluating human resource indicators, design, and Various modeling and simulations can be used for social networks. Also, considering that research on claim management has not been conducted using the identification of potential project stakeholders through social networks, this method can be a new solution in terms of claim management of construction projects. One of the advantages of this method is that by identifying and creating a predetermined structure according to public and private documents of the treaties and evaluating the effectiveness of each stakeholder in each field and creating relationships and valuing the relationships, each factor can be claimed. Effectively managed the project. Although the use of social network analysis in all research has advantages and disadvantages, but social network analysis tools in identifying the main stakeholders to manage different claims can make the project manager aware so that by making decisions Properly prevents potential challenges.

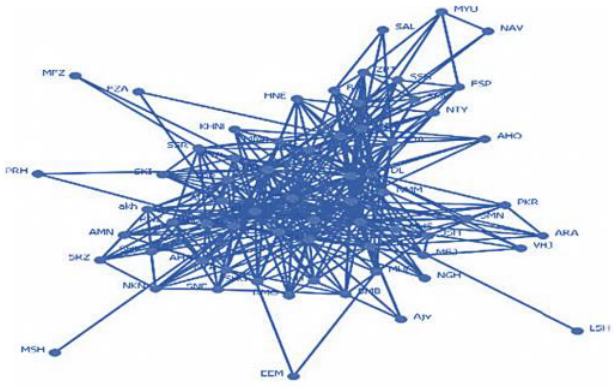

Fig. 1. Communication network graph of project stakeholders

From a practical point of view, the proposed framework of this research can be a way forward in the executive apparatus and companies of consulting engineers and contractors and prevent many common damages in construction projects that result from the claims of each party to the contract. Finally, it can be concluded; If the performance policies of the managers and the work process do not change much during the project, social network analysis can be used to manage the claim.

4- Conclusions

According to the results and studies, it can be said that the acceptance and implementation of new management systems such as the project stakeholder claims management system requires the identification and knowledge of key effective and influential areas in that area [7]. Explaining these patterns is sometimes complicated due to their invisibility, and therefore, effective analytical tools should be used to obtain practical results. Given that the independent variables are individuals and organizations and dependent variables of claims, and knowing that the occurrence of claims will usually lead to changes in time, cost, and quality, so creating a relationship and value between variables can lead to timely and correct decisions. Be in the field of project management. In this study, to explain the patterns of analysis of the model under study and to identify the achievement of the desired goals to evaluate project stakeholders in the ability of common claims in construction projects, social media analytical tools were used. Therefore, in the present study, first, through the research background in the form of 13 articles, some measures taken in construction projects were examined using social network analysis, and then in the topic of identifying conventional claims by studying 14 articles, 10 groups of claims. And 60 types of claims were identified. The claim arises in industrial projects for various reasons, which through interviews with experts and key stakeholders of an industrial project related to the construction of an anodizing plant in Markazi province, twelve groups of stakeholders were identified according to paragraph 5 of this article. Through multi-stage informal interviews and interviews with them, the most important

claims and relationships between stakeholders regarding the identified claims were drawn, and through social network analysis, after examining the role of stakeholders in each of the ten claims and drawing the relevant graph, evaluation A summary of the role of stakeholders in the ten claims was made and the most important stakeholder in each claim was identified using the centrality measure. The project manager and then the project manager and then the contractor are given priority, and finally, by drawing a communication graph between the main members of these stakeholders, different metrics were measured and analyzed according to Table 9. In this case study, we analyzed the communication network between the elements within the social network of construction projects, which includes employers, contractors, consultants, project managers, supervising engineers, and other departments, so that we can identify relationships between members and analyze the analysis of established networks. Match the results of the evaluation of the proposed model in the form of this social network with its unique features.

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