An Expert System for Contractor Qualification Criteria Selection (ES_QS)

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SUMMARY

Selecting a suitable bidder for construction projects is one of the major decisions taken by clients, however, most contractor selection methods overemphasize the acceptance of the lowest bid as the tender price is usually perceived as a major prerequisite to winning a contract. Selecting the lowest bidder has been overly criticized in works procurement literature, leading to the incorporation of a contractor evaluation phase focused on assessing the financial and technical capabilities of bidders. However, there are some drawbacks in the evaluation phase as the selection of suitable criteria for evaluating bidders is hugely subjective. Even though qualification criteria selection is project-specific, there are issues of repetition of qualification criteria for different projects leading to the use of unjustified criteria for evaluating bidders. The knowledge required for selecting suitable qualification criteria exists in books, journals, and the minds of a few human experts. Expert system technology is a tool that uses human cognitive capabilities to store knowledge electronically for decision-making that can be accessed anywhere and at any time. This study aimed to develop an Expert System (ES) tool for Selecting Qualification Criteria for bid evaluation (ES_QS). The development of the system, ES_QS, was based on an extensive literature review and knowledge elicited from an expert survey to provide recommendations for the rules. This system is developed to assist decision-makers (clients) in objectively selecting suitable qualification criteria for bid evaluation. Additionally, bidders can gain prior knowledge of their selection criteria for making a bid/no-bid decision and reduce disqualification events. The system provides an objective way of selecting contractor qualification criteria.

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