

Multi-Criteria Decision Making Approaches for Facility Planning Problem Evaluation: A Survey

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Abstract : The relationships between the industrial facilities, the capacity available for these facilities, and the costs involved are the main factors in deciding the correct selection of a facility layout. In general, an issue of facility layout is considered to be an unstructured problem of decision-making. The objective of this work is to provide a survey that describes the techniques by which a facility planning problem can be solved and also the effect of these techniques on the efficiency of the layout. The multi-criteria decision making (MCDM) techniques can be classified according to the previous researches into three categories which are the use of single MCDM, combining two or more MCDM, and the integration of MCDM with another technique such as genetic algorithms (GA). This paper presents a review of different multi-criteria decision making (MCDM) techniques that have been proposed in the literature to pick the most suitable layout design. These methods are particularly suitable to deal with complex situations, including various criteria and conflicting goals which need to be optimized simultaneously.

Keywords : facility layout, MCDM, GA, literature review

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