A CLUSTERING ALGORITHM
FOR THE DYNAMIC SPACE ALLOCATION PROBLEM

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ABSTRACT

The dynamic space allocation problem (DSAP) is a relatively new problem in the literature. It looks at the optimization of space management during a project implementation. More specifically, the DSAP minimizes the total distance traveled by the resources required to perform the activities of a project during its planning horizon. The DSAP is related to the dynamic facility layout problem. In this paper, a construction algorithm based on clustering algorithms used in cellular manufacturing and heuristics used to solve the storage layout problem are presented and used to solve the DSAP. For the DSAP, the clustering algorithm provides better solutions in 80% of the cases when compared with a pair-wise exchange heuristic. Given the complexity of the DSAP, solutions obtained with the clustering algorithm can be used as initial solutions for more effective meta-heuristics such as tabu search.

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