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Contributions to the design and analysis of cellular manufacturing systems

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Abstract

The application of group technology concepts to the design and operation of manufacturing cells has had a major impact on improving the performance of multiproduct, moderate volume manufacturing systems. Initially, the research on manufacturing cells focused primarily on methods for identifying rational part families and machine groups using only basic processing data. However, the comprehensiveness of the problem definition and the supporting decision models have evolved over time to include many relevant organisational issues and options. This paper reviews the developments in this area with particular emphasis on the leading contribution of the International Journal of Production Research. Based on those contributions, a more complete, general formulation for the design of manufacturing cells is presented.

Keywords:

group technology | cellular manufacturing | mathematical formulation

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