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Testing the theory of performance frontiers in the era of Industry 4.0

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Although the Theory of Performance Frontiers (TPF) has been central to understand manufacturing strategy choices and performance, attempts to empirically test it have been few and incomplete. Over the last decade there has been significant development of new Advanced Manufacturing Technologies (AMTs), captured by labels such as industry 4.0, which may hold the potential to revolutionize established theory. This study employs Data Envelopment Analysis to examine whether the TPF holds in this new environment, considering operating frontiers and asset frontiers determined by recent AMTs. Based on data from 931 manufacturers, we provide insights for manufacturing strategy associated with recent AMTs.

Keywords: Manufacturing Strategy, Performance Frontiers, DEA.