International Journal of Production Research ›
Volume 42, 2004 - Issue 10

Original Articles

Empirical models of the effect of integrated manufacturing on manufacturing performance and return on investment

S. C. Henderson, P. M. Swamidass & T. A. Byrd

Pages 1933-1954 | Received 01 Oct 2003, Published online: 21 Feb 2007

Cite this article https://doi.org/10.1080/00207540310001645138

Full Article | Figures & data | References | Citations | Metrics
Reprints & Permissions | Read this article | Share

Abstract

The effect of integrated manufacturing on non-financial manufacturing performance and return on investment is studied. Technology-use data from over 1000 manufacturing plants in the USA were used to test empirically the relationships between variables integrated manufacturing, non-financial manufacturing performance and return on investment. Notable findings were (1) integrated manufacturing shows a strong effect on non-financial manufacturing performance and (2) non-financial manufacturing performance has a statistically significant direct effect on return on investment. It is recommended that the justification of investments in manufacturing technologies that contribute to integrated manufacturing must be based on non-financial manufacturing criteria as well as on return on investment. Using two different models, it is shown that the causal model developed in the study is robust.

Acknowledgements

P. M. Swamidass gratefully acknowledges the support received from the National Science Foundation (NSF Grant SBR 9311807, 1993; and SBR 9919054, 1997), the National Association of Manufacturers (NAM), Washington, DC, and the Thomas Walter Center for Technology Management, Auburn University.