

# An Economic Evaluation Model for Advanced Manufacturing Systems Using Activity-Based Costing

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## ABSTRACT

The development of traditional cost accounting(TCA) systems is based on the mass production of a mature product with known characteristics and a stable technology. In particular, the traditional investment decisions in manufacturing are made based on cost accounting data collected for the production setting given, where the cost structure and the uncertainty( in demand, in actual costs, or delivery times) are assumed exogenous to the system. Recent manufacturing experience suggests, however, that these assumptions- stable product and mass production - are no longer valid for an advanced manufacturing system(AMS). Thus, manufacturing companies have reduced their dependenc on TCA systems by exploring activity-based cost (ABC) systems. Since TCA and ABC systems have different means of handling overhead costs, they may also have differences in their estimates of cash flows with cost accounting data. We will develop costing procedures for various manufacturing activities under ABC systems, and these procedures are incorporated into the proposed multistage investment decision model. Finally, a case study is presented to demonstrate the application of the economic decision model, and we conclude that opportunity costs such as waiting activity and idle activity play more critical roles than the right choice of cost accounting system in justifying invesment in an AMS.