Organizational adaption for AMT implementation in the SMIs

ABSTRACT

Several factors have been identified as important to the implementation of AMT. A key ingredient to the long term benefits of AMT is the implementation of a parallel process of organizational change to match the technological changes taking place. Increased competitiveness and flexibility of the firms can be achieved if there are high levels of integration of the technologies and mutual adaptation of the organization and technology. To analyse the level of AMT integration and the level of adaptation between organization and technology, a study was conducted in the SMIs of Malaysia using survey questionnaires. The use of computers to integrate the various activities and functions in the SMIs were evaluated to determine the levels of automation practiced in the companies. The adaptation between technology and organization for the small and medium scale industries (SMIs) of Malaysia was determined by identifying the organizational factors important for AMT implementation. Using aggregated index of organizational and technological parameters developed from the questionnaire, a Technology (T)-Organization (O) map was drawn. The T-O map describes the patterns of technology and organizations for the companies and used to classify the position of the companies on the T-O map. Results of the study showed that the level of computer usage in integrating the functions were rather low. The regression analysis carried out to establish the 'best-fit' model for the aggregated index showed that the best-fit model for T-O is a polynomial regression model of the 4th order with R2 =0.38766. The result indicates that the variability in the organization has been explained by only 39% in the model developed. A greater fit between organization and technology will be achieved only with higher R2 values. Using the T-O map, only seven companies can be classified as high technology, high organization (HT-HO) whereas almost 83% or 113 companies are in the low technology, low organization (LT-LO) classification. The results clearly indicate that there is lack of integration between the technologies and that the companies are practicing the old methods of management not suitable for AMT implementation.

Keyword: Advanced Manufacturing Technology; SMIs; Adaptation; Organization; Technology; T-O map