

## **Barriers to advanced manufacturing technologies implementation in the small and medium scales industries of a developing country**

### **ABSTRACT**

The small and medium scale industries (SMIs) are the backbone of the industrialization process in developing and developed countries. They play a crucial role in increasing the country's economy. With globalization and free trade agreements, the SMIs are under increasing pressure to adopt advanced manufacturing technologies (AMTs) to be competitive or simply to survive. Even though studies have shown that AMT can be implemented in smaller firms and are more successful than bigger firms, the implementation of AMT requires the SMIs to adopt new ways of thinking and doing work. The successful implementation of AMT will require the companies to have a workforce with higher level of skills, a flexible organizational structure and inculcate a new culture in managing, training and planning of the manufacturing industries. A study was conducted using survey questionnaire to investigate the ability of the SMIs of Malaysia to implement AMT successfully. The results of the survey showed that the main factors preventing the SMIs from obtaining the strategic benefits of AMT are the lack of an organic structure and understanding of the technologies, planning, the level of skilled workers and engineers and the culture of the industries. To increase competitiveness and flexibility of the organizations, a flexible structure is required. There is a need for the SMIs to increase the number of engineers and training provided in the companies to enable a positive contribution to AMT implementation. The ability of the workers to run multiple machines, stopping production when problem occurs, communication of organizational goals, and participation in idea generation and decision-making are important in achieving the flexible benefits of AMT. The SMIs have to increase the educational and training needs of the workers and also have a higher understanding of the technology to realize its potential.

**Keyword:** AMT implementation; SMIs; Developing country; Organizational structure