



# EVALUATING OVERALL PERFORMANCE OF AMT IMPLEMENTATION BY CONDUCTING A TECHNICAL NEED ANALYSIS FOR SRI LANKAN APPAREL INDUSTRY



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**Akalanka S.L.**

Supervised by

Dr. H. S. C. Perera  
University of Moratuwa



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This thesis was submitted to the Department of Mechanical Engineering of the University of Moratuwa in partial fulfilment of the requirements for the Degree of Master of Engineering in Manufacturing Systems Engineering

**Department of Mechanical Engineering  
University of Moratuwa  
Sri Lanka**

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## DECLARATION

This Dissertation paper contains no material which has been accepted for the award of any other degree or diploma in any University or equivalent institution in Sri Lanka or abroad, and that to the best of my knowledge and belief, contains no material previously published or written by any other person, except where due reference is made in the text of this Dissertation.

I carried out the work described in this Dissertation under the supervision of Dr. H.S.C Perera.

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Date : 27. 05. 2010.

Name of Student : Akalanka S.L.



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## Abstract

Advance Manufacturing Technology (AMT) possess tremendous advantages and challenges for organizations. Based on the previous studies of AMT implementation, we investigated the impact of conducting a proper technical need analysis on pre installation phase of AMT implementation to the overall performance.

Our research was designed to manipulate several factors of technical need analysis, inconvenienced factors of implementation phase and performance factors of post implementation phase, by surveying 102 plants that had implemented advance-manufacturing process on apparel industry in Sri Lanka over the past five years. The questionnaire was designed by means of operational and concepts chart, which was made by analyzing the various critical factors that were influencing to success implementation of AMT in global context.

The results indicated that the key to successful AMT planning is conducting of a Technical Need Analysis, which ultimately defines the path throughout the project. This laid a strong foundation for implementation and commissioning of needful AMT, provided the necessary and adequate organizational infrastructure to a selected manufacturing system. Further, we can conclude that for some extent Sri Lankan apparel entrepreneurs focus on a technical need analysis. Even in such an analysis, they mostly concern on technical aspects, but less attention given on financial, organizational and operational related factors. The fact of overall performance of AMT implementation is not attaining to a satisfactory level is further reflected with the above results. We were unable to gain a variety of technological implementation in our survey, as most of the firms did not have a proper inventory of such adaptations. In addition, difficulties aroused to collect data on AMTs for the last five years. In some cases, the entrepreneurs not willing to reveal their technical and business updates due to competitiveness of apparel industry.

Further research could be carried out in the field of Sri Lankan apparel industry in the areas of evaluating opportunities and barriers to automation related AMT and evaluating cost benefits of design software tools to the SME entrepreneurs.

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