

APPLICATION OF "JUST-IN-TIME MANUFACTURING  
TECHNIQUES" IN KENYA. A CASE OF METAL  
MANUFACTURING INDUSTRIES IN NAIROBI

BY

MUGUTHU, JOSEPH NJUGUNA.

EDU/PGT/11/2003



MOI UNIVERSITY  
LIBRARY

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS OF THE DEGREE OF  
MASTER OF PHILOSOPHY  
(*Mechanical Technology Option*)

200223

OF THE  
DEPARTMENT OF TECHNOLOGY EDUCATION

MOI UNIVERSITY

AUGUST 2007



## ABSTRACT

Industrialization has been embraced by many developing countries as a means of achieving structural transformation of their economies. In Kenya the goal of industrialization has long been held as a strategy for economic development. This has led to manufacturing industries applying Just-In-Time (JIT) manufacturing technique that is cost effective, waste conscious, and leads to improved quality to strengthen their survival against global market competition. The current study was undertaken to investigate the application of JIT manufacturing technique among metal manufacturing industries.

The study was carried out in Nairobi city. The research investigated the JIT production components that metal manufacturing industries had applied, basic machine maintenance tasks performed by machine operators, production machine set-up times, cross training among machine operators, the professional qualifications of production managers and machine operators, the study also investigated the various challenges metal manufacturing industries were facing in their effort to modernize. In order to get a representative sample in the study metal manufacturing industries were subjected to simple random sampling technique. The sample for the study composed of production managers with a sample size of thirty-seven (37). Data was generated by the use of questionnaires, interviews and observations. The statistical tools used for data analysis were Chi-square at 0.05 level of significance and spearman rank correlation.

The study found out that the number of JIT production components metal manufacturing industries had applied were significantly different from those

recommended for JIT production, on machine maintenance, machine operators seldom perform basic machine maintenance tasks, on machine set-up times, these were very long compared to what is recommended for JIT production. The study also found out that machine operators were poorly trained to operate different machines in the industry. It was found out that there is a relatively high degree of negative correlation between the professional qualifications of production managers and those of machine operators. The study revealed that about half of machine operators are on-job trained.

From the findings, the study recommends that, first the Government through its appropriate research and development institution take an aggressive role in educating industrialists on JIT manufacturing, its application and the underlying benefits. Secondly manufacturing industries through their umbrella body should design training programmes for machine operators in basic machine maintenance, machine set-up time reduction as well as cross training. Thirdly the Government should assess the training offered to on-job trained labour force in formal industries with a view to harmonising it and offer certification. Fourthly the Government should support the manufacturing sector in sourcing affordable credit to purchase modern production equipment.

Suggestions for further research include performing a similar study in other manufacturing sectors, continuous improvement on quality, and how technological gap in the manufacturing sector can be bridged. The nature of training given to on-job trained machine operators need also to be investigated.