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MECHANICAL ENGINEERING DEPARTMENT**

**DIPLOMA PROJECT**

**STUDY ON THE IMPROVEMENT OF PRODUCTIVITY  
OF A MANUFACTURING FIRM  
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**by  
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**STUDY ON THE IMPROVEMENT OF PRODUCTIVITY  
OF A MANUFACTURING FIRM**

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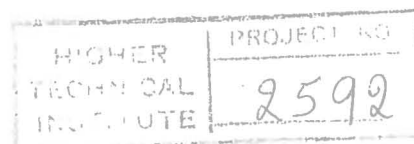
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**To my parents who gave me everything**

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**MICHAEL MARIOS**

# STUDY ON THE IMPROVEMENT OF PRODUCTIVITY OF A MANUFACTURING FIRM

By: Michael Marios

## SUMMARY

This project has been divided into eight chapters.

Chapter one deals basically with the work study, the basic procedure of work study and the working conditions.

Chapter two deals with the diagrams which show parasitically the procedure that a metal roll is converted to a small storage room; the total distance covered by the workers. Some of the diagrams are : the flow process, the transportation and the detailed flow process.

Chapter three, refers to the detailed description of processes involved.

Chapter four deals basically with the problems faced at the various stations and classification of them.

Chapter five refers to the suggestions, solutions that they could be for better existing conditions.

Chapter six is about the actual changes and corresponding cost which should be made for more improvement of productivity.

Chapter seven deals basically with the performance of existing conditions and the performance of best compromised conditions and comparison of cost for proposed changes with profit.

Chapter eight refers to the summary of recommended solutions, further work and to the plant of suggestions implementations.

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## INTRODUCTION

The continuous competition among products and services which originate from different enterprises and organizations raise the necessity to improve the productivity in the enterprise or the organization in order to keep being competitive. In either cases the improvement aims at lower production costs, increased profits e.t.c.

Let us first define productivity.

What is productivity?

Productivity implies the enhancement of the production process. Enhancement of production refers to a favourable comparison of the quantity of resources employed (inputs) to the quality of goods and services produced (outputs).

That is, productivity is the ratio between output and input. This definition is a general one and can be applied in any enterprise, industry or economy as a whole.

$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

What are the resources at the disposal of a manufacturing company?

These are the following:

**(1). Land and Buildings:**

Land in a convenient location on which to erect the buildings and other facilities necessary for the operations of the enterprise, and the buildings erected on it.

**(2). Materials:**

Materials that can be converted into products to be sold. They include rolls sheets of metals, trolleys, overhead cranes, welding device, grinding wheel, drilling machine with air, shear press machines, machine of ordinary metal sheers, electric shear cutting machine for use in the processes of manufacture and packing materials.

**(3). Machines:**

Plant equipment and tools necessary to carry out operations of manufacture, the handling and transport of materials, office equipment, and storage room.

**(4). Man-Power:**

Men to perform the manufacturing operations; to plan and control; to do clerical work; to design and do research; to buy and sell.

The use of all these resources determines the productivity of the enterprise. These resources consist of “real” things and services. When they are used up in the process of production “real” costs are therefore incurred. Their cost may also be measured in terms of money. Since higher productivity means more output from the same resources, it also means lower money costs and higher net money returns per unit of output.

This study is concerned with the improvement of Productivity of a Metal Working Industry. The name of the industry is **Metalco Ltd** and is located at Latsia industrial area near the Cyprus Shooting center.

The type of production used in Metalco is the batch production. This means that the company produces a number of different products in varying quantities for a range of customers. So, the quantities produced are based upon customers orders. Due to that, a really large stock is built up. Other reasons that stock is built up are the port strikes and the metal rolls that are coming from abroad. At that specific industry there are two production lines. One production line deals with the production of portal frame, small storage rooms or garage, and ordinary metal sheers, and the other production line deals with portal frame. The products are either disposed in local market or they are exported in European countries. This project deals with the first production line.

The problems faced with the specific industry that restrict its productivity were investigated and analysed in order to come up with economically and functionally approved solutions. The whole project is like a coin having

two faces. On the one side it aims to provide useful and helpful information with solutions for improvement and on the other side it aims to combine these with probable further factory expansion.