

A Detailed Review on Lean Manufacturing Processes for Industrial Productivity Optimization

Raktate Omesh Uttamrao^{1*} Dr. S. Ramesh²

¹ PhD Student, University of Technology, Jaipur

² PhD Guide, University of Technology, Jaipur

Abstract – One of the most significant research areas in modern time is the need, potentials and possibility of building the methods and application tools and techniques aims for the improvement of machine tool manufacturing processes. The idea of lean manufacturing was created to maximise resource efficiency by reducing waste; however, lean was further adapted in reaction to the changing and dynamic market world. The comparison of before and after LP programmes in determining managers' future advantages, such as shorter manufacturing lead times and lower work-in-process inventory. The aim of this paper is to synthesise the literature with a focus on defining the potential for lean in the process industry and the benefits that come with it. The study further examines lean production methods that have been used or may be used in the process sector, as well as the complexities of implementing lean. Even, how using Lean tools can be extremely beneficial in increasing efficiency. Productivity enhancement is important in most production and process sectors because it aids in the elimination or minimization of waste.

Key Words – Lean manufacturing, Production, Waste Reduction, Productivity Optimization and Review

.....X.....

1. INTRODUCTION

Manufacturing Industries [1] - [3] are the major drivers of a nation's economy. Competitive economic growth of a nation is based on the Gross Domestic Product (GDP) [4]. Indian Industries are not exceptional to this norm. Manufacturing sector in Indian Industries needs to be reinforced to attain faster economic growth. Capability of industries to sustain long-term competitiveness relies on their performance. It also depends on the capability of introducing, adopting or developing new technologies. Improving the performance of manufacturing industries against the global challenges like speedy globalization, resource utilization, advanced technologies, increased competition, and protection of innovations is an important issue. In recent times, India has progressed in various phases of science and technology with strong worldwide network, quality manpower and innovations. Even though India's potential is identified globally, still there is a gap in promoting interactions between organizations and research establishments.

The structural reforms in India have propelled service sector to contribute to 50% of GDP [5]. Other than agriculture, India needs to create more job

opportunities to stop the increasing level of unemployment. As it requires educated and highly skilled professionals, service sector cannot completely offer jobs to all the remaining unemployed ones. This shows the importance of manufacturing industries both in employment and GDP.

The major reason for manufacturing organizations not being much competitive at the global level is the existence of non-registered Small and Medium sized Enterprises (SMEs). The investments for these industries are low and demands for their products in market are distorted; hence no advanced technologies are followed by these industries. Other reasons for this kind of scenario are poor quality of infrastructure facilities, high rate of power consumption and high capital cost. Special attempts to upgrade infrastructure and to create good financial climate are required to promote the manufacturing sector in India. On the other side of these preparations, individual organizations should focus on improving their operational performance and cost effectiveness by making some internal changes. These could be done by imparting the following aspects [6]: