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IMPLEMENTING "QUICK-WINS" IN LEAN MANAGEMENT A CASE STUDY

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ABSTRACT

This study was undertaken at a Small and Medium-sized Enterprise (SME) in the metalworking sector, where Lean Management has been implemented through several Lean Tools (LT) and their variations. This study comprised two main goals. The first involved demonstrating which LT allow the highest impact during the implementation phase, thus producing great influence both in terms of organization and operational results, as well as in the context of employees' motivation. The second goal consisted of introducing procedure changes based on the Management of Human Resources through Lean Leadership tools.

By implementing these two objectives, one was able to achieve an increase of 8,5% in machine occupancy rate, and a reduction of 27,9% regarding the costs of defective products per hour.

***Keywords*:** Management by Objectives; KPI; Daily Kaizen; Visual Management; PDCA; 5S; 5 Whys; Yokoten; Brainstorming.

INTRODUCTION

During the months of November and December 2018, all the relevant existing data pertaining to the machining area of metalworking industry was compiled and analyzed. It was then divided into three categories: a) Adjustment to the area of manufacture/equipment; b) Management records and data; c) Lean Leadership.

By considering the tangible validation-worthy KPI, the project was set on two pillars: 1) the Production Rate; and 2) the Relation between Non-Quality/Production Hours. One then selected ten tools (Lean and Quality), the results of which would generate great impact within a 3-month period and in association with employees. The chosen tools allowed for changes in processes, manufacturing methods and cooperative management. After analyzing scientific articles and determining the company's stage of maturity, the following tools were selected for implementation: (1) Management by Objectives/SMART Objectives – Each worker's objectives were controlled weekly (2) KPI – A more generalized concept was transmitted to the entire company and its staff; (3) Daily Kaizen – besides being implemented in the production areas, it was also applied to cells; (4) Visual Management – reformulated to include cells; (5) PDCA – tool used in daily Kaizen to progress in problem solving; (6) Gemba Walk – the process was made to include the entire hierarchy, including the CEO; (7) 5S – introduction of the first 3 S to enable organizing spaces; (8) The "5 Whys"- to address the production of NCs (Non-Conformities) which require more complex solutions; (9) Yokoten: used to disseminate actions taken in the "5 Whys" throughout the area of manufacture; (10) Brainstorming – working with cell operators to find proposals for continuous improvement.

RESULTS AND CONCLUSIONS

After the implementation of the ten tools, the measurement of results have proven that some of the tools can be implemented effortlessly and rapidly. Since they are easily understood by workers and are managed by lean leadership tools, the operational results were highly positive, both in the occupancy rate of 8.5% (see Table 1) of machines, which was achieved in 3 months, as well as in the considerable increase of worked hours. Consequently, the relation of costs associated to non-quality per hours decreased significantly by 27.9% (see Table 2).

Table 1 –Productivity Rate

Productivity Rate	Average 2018	Goal for 1st Trimester 2019 (+5%)	Goal of 1st trimester 2019
Cell 1	56.5%	61.5%	64.2% **(+7.7%)**
Cell 2	56.1%	61.1%	66.3% **(+10.2%)**
Cell 3	54.6%	59.6%	64.8% **(+10.2%)**
Cell 4	43.5%	48.5%	49.5% **(+6.0%)**
Factory Average	52.7%	57.7%	61.2% **(+8.5%)**

Table 2 – Costs of Non Quality (NQ)/Production Hours

Costs of NQ / Production Hours	Average 2018	Goal for 1st Trimester 2019 (-10%)	Result of the 1st Trimester 2019
Manufacturing Area	0.61	0.55	0.44 **(-27,9%)**

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