

PAPER REF: A17506

DEVELOPMENT OF A MAINTENANCE MANAGEMENT MODEL BASED ON CONTINUOUS IMPROVEMENT

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ABSTRACT

In this work, a model was developed to implement continuous improvement in maintenance management activities, based on the seven lean principles and which enables the joint use of LEAN, Quality and TRIZ analytical tools. The model was created in order to be used in any organizational setting, so it is quite flexible and adjustable. Its advantage lies in its flexibility in the choice of tools, methods and techniques, in which this selection must meet the objectives of the organization/ institution and its strategy. To validate the model a case study was performed in the maintenance department of a service company.

Keywords: Maintenance Management, LEAN, TRIZ, continuous improvement.

INTRODUCTION

Maintenance management is defined as the set of management activities that establish maintenance objectives, strategy and responsibilities, and implement it through its planning, control and supervision and continuous improvement of the organization's methods including economics factors (BS EN 13306, 2017). In response to actually business competitiveness, new challenges in maintenance management emerge. The reduction costs became imperative.

The Lean philosophy stands out for its ability to reduce and eliminate waste and consequently the costs. The Lean principles used in conjunction with other methodologies and tools, allows a rigorous global diagnosis of the activity's problems, with the objective of generating improvements in maintenance activities, optimize the maintenance management and the costs associated. Independently of Lean Philosophy emerged within the scope of industrial production, it can be used in all kind of organizations, private or state, industrial or service, with the establishment of appropriate model.

In this work is developed an innovative maintenance management model that combines the activities and technical actions leading to the improvement of equipment reliability, maintainability and availability, taking into consideration the lowest possible cost. To validate this model, a case study was performed in the maintenance department of a private company.

RESULTS AND CONCLUSIONS

The Maintenance Management Model proposed in this work is developed for the implementation of LEAN principles. The implementation must occur gradually, to the changes that take place in the Maintenance department can be systematized. Therefore, the model was

designed as a cycle (Figure 1), with the objective of promoting continuous improvement, while allowing the expansion of LEAN tools. As shown in Figure 1, this model consists of seven phases, in which six are considered as main phases, followed by a final phase that supports the systematization of concepts and processes.

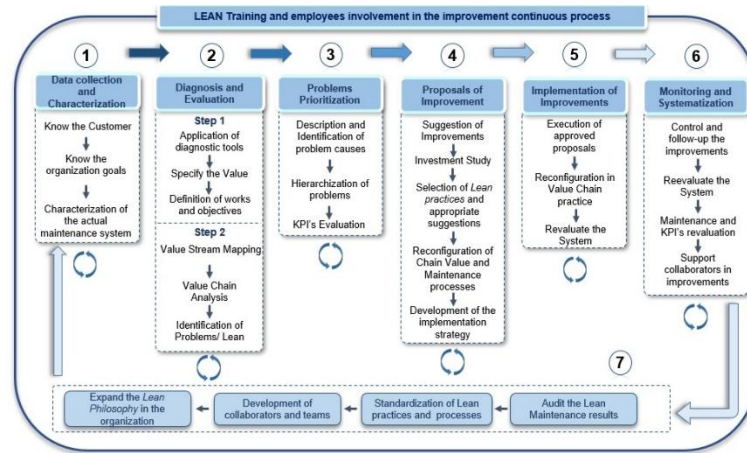


Fig. 1 – Model Developed

With the end of the pursuit of continuous improvement in maintenance management, supported by the development of the model that allows the interconnection between tools, methods and techniques from areas such as Quality, LEAN and TRIZ, the following conclusions were drawn:

- To achieve the intended cultural change, governed by the LEAN Philosophy, a “LEAN supervisor” is required to guide and train the entire team.
- Prior to model application there should be an investment in LEAN training; how methodologies can be applied and what benefits it brings to employees and to the organization.
- The diagnosis to the model implementation should be performed by a person outside the organization. Employee acceptance is better. Benefits from a new vision that helps quickly reveal true and critical weaknesses, avoids the sphere of internal influences and a priori judgments about people and problems.
- The participation of all employees, from the start-up phase of the project, provides a global sense of acceptance and active participation to create continuous improvement. It was possible to prove to top managers that the inclusion of all employees is a key factor for the current paradigm shift.

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