

Analysis of the fall of TPM in companies

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Abstract

The search for interaction between maintenance and production has been of great intensity in the manufacturing industries. With the maintenance policy it is possible to enhance the productivity in a global way. In this sense, the most used methodology is total productive maintenance—TPM, with its sustainable pillars guide will create routines that enable that interaction. Companies may be classified in three ways regarding to TPM: the ones that really have the structured and working methodology; the ones who say they have it, but they do not have even the structured basic principles; and the ones who had already established the pillars but let this structure to fall serving its fragments only to satisfy the audit. This paper is about this third case, where the main factors that lead to the gradual abandonment of already reached levels of excellence of application of the TPM methodology is presented. For the analysis of the problem operators, maintenance people and managers involved in the productive process were heard. This document was elaborated based on these multiple visions.

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1. Introduction

Nowadays there is no place for improvisation when it comes to industrial management matters, being production or maintenance. In a general way, the impact of an inadequate and an inefficient maintenance can define the business profitability and the survival of the company. The use of new technologies, and new methods of management have multiplied in companies who try, this way, to keep and broaden their space in the market [1]. The human factor is presented essentially for the success of all this complex process, regardless even to the adopted philosophy. According to Kardec and Zen [2], the education and the training of engineers, technicians or maintenance technicians, capable of execution and control, in Brazil is still incipient. Basically the seminars, conferences, workshops and short-term courses (such as improvement and specialisation) are responsible for the formal qualification of the maintenance community in this country. This pseudo-amateurism management compromises the sustainability of several programs applied in the area of industrial maintenance.

In order to analyse the proposed problem of the fall of TPM in companies, operators, maintenance people and man-

agers involved in the productive process were heard. This paper was constructed based on these multiple visions, approaching the main factors involved in the failure of TPM. It is also highlighted, in an explicit way, the key role developed by the collaborators, in all levels, to the success of this methodology. The information ground for the elaboration of this paper is mainly formed by the manufacturing industries of the Metropolitan Region of Curitiba, because in this region, according to Rodrigues [3], TPM is presented in the companies as one of the main tools of management of the industrial maintenance, as shown in the Fig. 1.

2. Where does total productive maintenance come from?

TPM—total productive maintenance, according to Takahashi and Osada [4], began in Japan through Nippon Denso Company, part of the Toyota's group, in 1971. TPM is considered an evolution in preventive maintenance, originally conceived in the United States in the 1950s, and according to Tavares [5], it is an evolution of maintenance technology methodologies known as: Latin School (France—middle 1960s), Russian Investigations (Russia—end of 1960s) and Terotechnology (England—beginning of 1970s).

The conception of TPM was an answer to the demands of a more and more competitive market that obliged the companies to draw some attitudes, such as: eliminating waste, always

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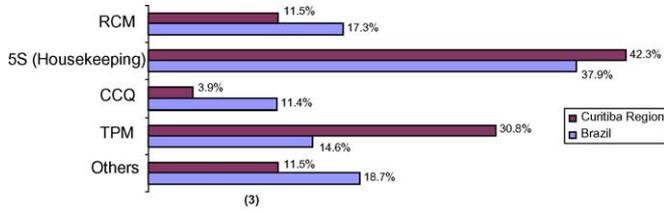


Fig. 1. Management tools applied in the maintenance in companies in the Region of Curitiba and Brazil. Source: Rodrigues [3].

obtaining the best performance of the equipment, reducing interruptions or stops of production (breakdowns or interventions), redefining goals. For this TPM distinguishes and attacks six essential sources of diminishing output in the industrial installations, which are presented in Fig. 2.

3. The pillars of TPM

The definition of the pillars adopted in TPM depends very much on the structure and philosophy that the company will use internally, being personalised according to the entrepreneurial culture already existing and the new culture that is the wishes to be implemented.

Souza [7] points out that TPM pillars must be developed in teams coordinated by managers or leaders of each team, and that structure must be in accordance to the hierarchy of the company. The work for the establishing of TPM pillars must have as focus the dimensions of: productivity, quality, customer attendance, safety and morale. While Takahashi and Osada [4] and Nakajima [8] present only five foundations as being the pillars of TPM, both Tavares [5] as well as Pinto and Xavier [1] present eight pillars that structure TPM, as shown in Fig. 3 which can be represented as:

- Equipment and process improvement—focussing in a clear way the wished improvement in business.
- Autonomous maintenance—self-management and control, it consists in the awareness of TPM philosophy.

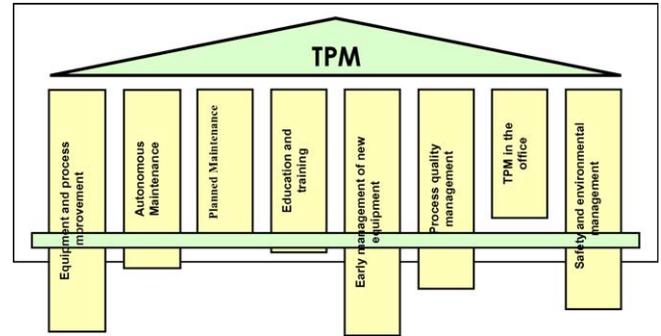


Fig. 3. The pillars of TPM.

- Planned maintenance—effectively planning and controlling of maintenance, with daily planning and planning of stops.
- Education and training—enhancing personal relationship, technical and management skills of maintenance people and operators.
- Early management of new equipment—attendance of maintenance people since the conception of new projects or acquisitions.
- Process quality management—establishment of a zero defect program.
- TPM in the office—efficiency—involvement of the administration in TPM program.
- Safety and environmental management—establishment of a health, safety and sustainable environmental system.

4. Factors that damage TPM success

Success of a TPM program is closely connected to the way of managing people, because the focus of the proposed work in this methodology is the human being. As it happens in all management process, it is necessary to create indicators for the evaluation of performance indicators of the program. In this context the indicators used to verify and control TPM are:

- Productivity.
- Costs.

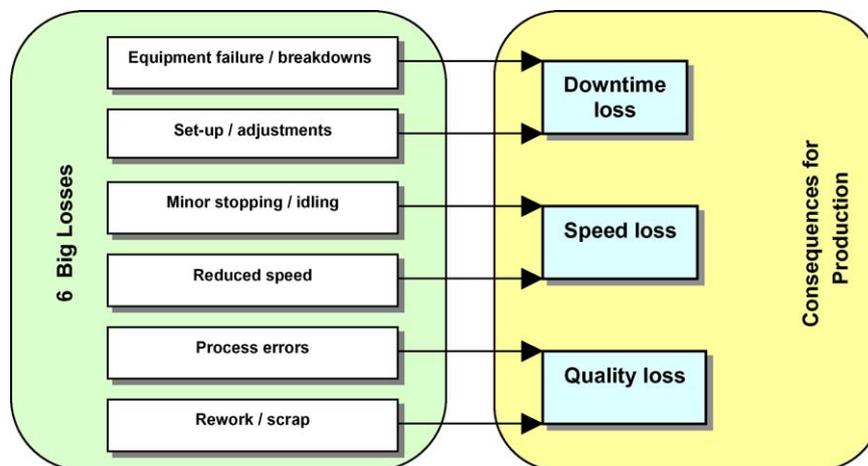


Fig. 2. The sources of losses according to TPM method. Source: adapted from Mishawaka and Olmedo [6].

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