

International Congress on Interdisciplinary Business and Social Science 2012

(ICIBSoS 2012)

Boosting Lean Production via TPM

Adnan Hj. Bakri^{a*}, Abdul Rahman Abdul Rahim^b, Noordin Mohd. Yusof^c, Ramli Ahmad^d

^aUniversiti Kuala Lumpur –Malaysian Institute of Industrial Technology, 81750 Bandar Seri Alam, Johor, Malaysia

^{b,c}Universiti Teknologi Malaysia, Faculty of Mechanical Engineering, 81310 Johor Bahru, Malaysia

^dProton (M) Sdn. Bhd, Industrial Engineering Department, 40450 Shah Alam, Selangor Malaysia

Abstract

This paper aims to have a brief study on the literature related to the application of TPM in the manufacturing industry. The study focuses on the main role of TPM in supporting the established quality improvement initiative such as lean production. Effort was made to discuss the published research related to TPM and lean production. This literature review-based research revealed an important research gap, i.e. the need of a comprehensive integration between these two methodologies. The significance role of TPM as an important complementary to lean production is observed has not been well addressed in the available literature. Most of the researches available investigate these initiatives separately, rather than addressing on the significant role of TPM as one of the main thrust. The beneficial outcome from TPM methodology is quite hindered and unexposed in some literatures related to lean production. The outcomes from this review is hope justify the needs of further research in the area of TPM integration with lean production, aimed at strengthening its philosophy towards more realistic applications.

© 2012 The Authors. Published by Elsevier Ltd.

Selection and peer-review under responsibility of JIBES University, Jakarta

Keywords : Total productive maintenance ; lean production ; waste elimination ; JIT; integration

* Corresponding author. Tel.: 607-259-7300 ; fax: 607-259-7400.

E-mail address: adnanb@mitec.unikl.edu.my ; adnan.hjbakri@gmail.com

1. Introduction

The process of maintaining the machines and processes to ensure its efficiency, availability and reliability, nowadays becomes increasing importance for organizations, as its directly impact on the quality, cost and delivery of the products or services (Ahuja and Khamba, 2008 ; Ahmed *et al.*, 2004; Blanchard,1997). Products have three properties in the eyes of a customer, which is (Q) Quality, (C) Costs and (D) delivery lead time. With the growing dependence of technologies for most business operation, it is vital to develop an appropriate maintainability and reliability strategies to ensure that these organizations are able to deliver high quality and dependable services to their customer (Madu, 2000). Total Productive Maintenance (TPM) methodology is a proven and successful procedure for introducing maintenance considerations into organizational activities (Graisa and Al-Habaibeh,2010; Ahuja and Khamba, 2008 ; Ahmed *et al.*, 2004; Blanchard,1997 ; Hartman, 1992).It involves operational and maintenance staff working together as a team to reduce wastage, minimize downtime and improve end-product quality (Eti *et al.*, 2004).

This paper aims to briefly study the literature related to the application of TPM in the manufacturing industry. The main focus is on the role of TPM in the established quality improvement initiative such as lean production. Effort was made to critically discuss the published research related to TPM, and lean production.

2. Literature review

2.1 Total Productive Maintenance (TPM)

Nakajima (1988), had given the original approach of TPM, defined it as the productive maintenance carried out by all employees through small group activities and can be viewed as equipment maintenance performed on a company-wide basis. A broad definition of TPM methodology available in the literatures (Konecny *et al.*, 2011; Graisa and Al-Habaibeh, 2010 ; Ahuja and Khamba, 2008 ; Ahmed *et al.*, 2004 ; Eti *et al.*, 2004; Chua *et al.*, 2001 ; Ireland and Dale, 2001 ; McKone *et al.*, 1999 ; Bamber *et al.*, 1999 ; Blanchard, 1997 ; Jostes and Helms, 1994 ; Willmott, 1994 ; Hartmann, 1992 ; Nakajima, 1988) . The ultimate goals of TPM is zero breakdowns, zero defects, zero accidents and zero waste (Nakajima, 1988; Ahuja 2008; Hartmann,1992). As a consequence from the elimination of breakdowns and defects, the equipment operation rates improve, costs are reduced, inventory can be minimized and labor productivity increases (Nakajima, 1988). TPM brings maintenance into focus as a necessary and vitally important part of the business. TPM seeks engagement from intra and inter-department in an organization to maximize the overall effectiveness of production equipment. It involves production and maintenance staff working together as a team to reduce wastage, minimize downtime toward improving the end-product quality (Eti *et al.*,2004).

2.2 Lean production

The lean production philosophy aims at reducing the operating costs through the elimination of waste .Waste is everything that does not add value to the product or services (Womack and Jones,1996 ; Monden,1983) and by eliminating the waste, ultimately its will enhance value to the production systems to produce a good quality products aimed at customers satisfaction (Moayed and Shell,2009 ; Sanchez

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات