Impact of implementing total productive maintenance system on organisational excellence based on EFQM model

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Abstract: In today’s world economic enterprises, particularly manufacturing industries require comprehensive planning for establishment of management systems in order to improve productivity and enhance the quality of products and services. Excellence models are designed as a tool for pathology and for competitiveness in national and international organisations. This study examines the influence of implementing a comprehensive total productive maintenance (TPM) system on the EFQM excellence model. Data collection involved a questionnaire consisting of 30 items. After data collection and extraction, all research hypotheses were analysed using descriptive and inferential statistics. Findings suggest a significant positive relationship between implementing a TPM system and achieving excellence goals of organisation.

Keywords: total productive maintenance; TPM; organisational excellence; customer results criteria; people results criteria; society results criteria; key results criteria.


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1 Introduction

Due to the modern competitive and environmental conditions, organisations are no longer able to ensure their long-term survival with changes in materials, methods, systems, structure, technology, etc. Organisations should bring about a revolution in the minds of their managers and employees to change the intellectual concepts of organisation, work, quality, competitors, profit, etc. Competitiveness in current business environments leads the attentions to customer satisfaction and adaptation with his/her requirements (Nazari-Shirkouhi et al., 2013). A variety of products, shorter product life cycles and markets expansion has resulted in a competitive environment in high quality product introduction. In such environment, organisations are required to provide products with high quality and low price. Thus, organisations need to seek the methods for reducing cost while introducing products with suitable price to increase competitiveness and profitability (Sundharam et al., 2013). Thus, improvement tools have been introduced, such as quality management, creativity and innovation, six sigma, lean thinking, etc.

Considering intense competition in the international economy and the belief that the economic environment continues to change, the markets demand higher quality of products and services and the customers demand for more options. Such phenomena show that success no longer guarantees success and survival of future organisations (Pramod and Banwet, 2010; Casse, 2012). Recently, manufacturing companies have made huge investments in the reliability of their production processes as well as in their quality management programmes (Konecny and Thun, 2011). The reliable systems and efficient equipment will lead to high quality products provided for customers by manufacturing companies. Maintenance function is therefore vital for sustainable performance of any manufacturing company (Muchiri et al., 2011).

One of the main issues discussed in any industry is maintenance to provide appropriate structure and effective methods for preserving and protecting machinery and equipment of the sector as well as increasing efficiency of the equipment and reducing related costs considering limitations and rarity of the resources (Wireman, 2004).

Managers of industries and manufacturing units require optimal use of all equipment and machinery used in the manufacturing units in order to develop and increase volume of their activities and the life of the equipment. Thus, a maintenance system continuously monitors and controls programme implementation and provides perfect information about the conditions and performance of equipment (Nakajima, 1988).

Total productive maintenance (TPM) has created considerable revolution as a new strategy in institutions where machinery and equipment play special role in service delivery process. This system calls all effective factors of service delivery with a comprehensive perspective and ensures promotion of all qualitative factors and efficiency by creating appropriate cultural substructure and relying on effectiveness of equipment (Hartmann, 1992).

Nowadays, the role of efficient evaluation and monitoring systems in the development and excellence of the organisations has become well recognised. Evaluation of organisational performance is important in order to identify weak and strength points for optimal use of resources and facilities (Kumar and Kumar, 2013). To this end, models of organisational excellence have been considerably successful as a strong tool to meet this need of organisations and have been used in organisational pathology to determine path for achieving human resource excellence. In fact, organisational excellence models