Production quality improvement for the soft drinks bottling industry through Six Sigma methodology

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Abstract: Increase of rejection rate (percentage) in the production process of soft drinks is one of the chronic problems in the soft drinks industry. Over four months, the production rejection rate (PRR) increased up to 12.62%. This resulted in an estimated loss of 93,412,800 Tanzanian Shilling (TZS) at X-Company. Therefore, this study explored how to improve the quality of production in the manufacturing process of the Tanzanian soft drinks industry. The Six Sigma methodology – define-measure-analyse-improve-control (DMAIC) – was employed. DMAIC considers existing products, process and improves the same. An in-depth insight into PRR and speed of acquiring such insight while increasing the problem diversification was successfully performed. Still, soft drinks companies face high PRR. The critical reasons occur during bottle filling and crowning operations. The sigma level was found to be 4.9 with the cost of poor quality being 12.62%. This study achieved a potential annual saving of 280,238,400 TZS.

Keywords: Six Sigma; Six Sigma methodology; SSM; DPMO; DMAIC; quality improvement; continuous improvement; production rejection rate; PRR; soft drinks; bottling industry; manufacturing rejects.

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