Layout Improvement Method Selection for a Mass Production Facility

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Abstract

Purpose of this study is to identify, analyze, and propose a solution to an industrial problem that would satisfy the needs of a manufacturing company by using tools and techniques of Industrial Engineering. For this purpose, production system of a metal cap manufacturer company, which is a well-known mass production company in packaging industry since 1963 in Turkey, has been inspected. In the first part of the study, overall system has been analyzed, problem symptoms have been identified, and then the problem definition has been made. Two problems have been defined as: (i) insufficient production capacity, and (ii) inefficient production system. According to these findings, objectives of this study has been determined as: (i) the improvement of the efficiency of current system by making some layout changes and making small-scale investments, (ii) analyze large-scale investment alternatives in the long run and conduct engineering economic analysis of these investment alternatives. Within this scope, alternative solution approaches, analysis of these alternatives, and selection of best alternative have been accomplished. As a result of this study capacity of the facility can be increased by 16% and investment required for this increase has a payback period of 71 days.

Keywords (12 font)
Facilities Planning, Engineering Economy, Layout Arrangement, Investment Planning

Biographies

Uğur Bac was born in Ankara, Turkey in 1982. He received his B.S. degree from Baskent University, Department of Industrial Engineering, Ankara, Turkey in 2004 and M.S. degree in Operations Management and Quantitative Methods from Hacettepe University in 2007. He received his PhD degree in 2013 and Assoc. Prof. Dr. title in 2017. He is currently working as Asst. Prof. Dr. at the Department of Industrial Engineering in Atılım University, Ankara as Vice Head of department. He has been involved with studies related to strategic management issues such as performance evaluation of supply chain, development of competitive strategies and evaluative key metrics by using techniques like multi criteria decision making and mathematical programming.

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