

Layout Improvement Method Selection for a Mass Production Facility

Uğur Baç

Department of Industrial Engineering
Atılım University
İncek, Ankara 06836, TURKEY
ugur.bac@atilim.edu.tr

Turan Erman Erkan

Department of Industrial Engineering
Atılım University
İncek, Ankara 06836, TURKEY
erman.erkkan@atilim.edu.tr

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 Baç 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.

Turan E. Erkan was born in Ankara, Turkey in 1970. He received the B.S. degree Physics-Economics Double Major in Middle East Technical University, Ankara, Turkey in 1994 and M.S. degree in Economics from Middle East Technical University in 1996, respectively. In 2005, he received his Ph.D. in Economics in Gazi University. His research interests are Information Systems, Supply Chain Management. Assoc. Prof. Dr. Erkan is currently working as Chair at Department of Industrial Engineering in Atılım University, Ankara.