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Hotel Laundry Optimization

Seçil Gülbudak Dil
Antalya Bilim University
Turkey
secil.gulbudak@gmail.com

Aybüke Şahin
Antalya Bilim University
Turkey
aybukesahin@std.antalya.edu.tr

Semail Ülgen
Antalya Bilim University
Turkey
sulgen@antalya.edu.tr

Abstract

Antalya, one of the most important cities in tourism, boasts numerous hotels. One of the significant challenges faced by group hotels with all-inclusive concepts among these establishments is the process of washing dirty laundry resulting from hotel operations. This project is being conducted in a group company that owns hotels in various regions of Antalya. Initially, one hotel was selected as a pilot hotel, and later, other hotels will be included in the process. The aim of this project is to decide whether the laundry washing operation should be carried out within the facility or through outsourcing for more efficient execution. The laundry of the selected facility is located on-site and is used to wash towels, blankets, and uniforms. Meanwhile, sheets, bed linens, tablecloths, napkins, and pillowcases are washed through external service procurement.

There are essentially two stages in this project:

i. Determination of the Current Situation:
   - Identification of existing capacity
   - Staff numbers
   - Laundry area size
   - Costs

ii. Analysis of the Possibility of Conducting Outsourced Services Within the Facility:
   - Determination of necessary capacity (machinery, equipment, personnel, etc.)
   - Shift work
   - Required laundry area size

In the first stage, existing equipment, staff numbers, and laundry area size were identified. The operational status of machines was analyzed, and business and time studies were conducted on processes. Additionally, costs such as electricity, water, machine breakdowns, etc., for the washing operation were determined. In the second stage, research will be conducted to determine the necessary resources if the processes conducted through outsourcing are to be performed within the facility. A decision will be made on which option is more advantageous. Upon the completion

of this study in the selected hotel, the establishment of a shared laundry for other hotels will be considered as an additional scenario. This scenario will also require solving logistical network problems.

The goal is to enhance the efficiency of laundry operations through a comprehensive assessment of the existing equipment, workforce, and operational processes. This involves studying the current capacity, researching prices for potential additional machines, analyzing the existing costs associated with laundry operations, and employing business and time study techniques to optimize workflow and resource utilization.

Keywords
Optimization, Analysis, Laundry, Shift Scheduling

Biographies
Seçil Gülbudak Dil is Cost Analysis Manager at a tourism company with many hotels in Antalya. She received his undergraduate degree in Industrial Engineering from Eskişehir Osmangazi University and her master's degree in Industrial Engineering from METU. She has worked in different companies in the private sector as a Planning and Logistics Engineer, Economic Policy Analyst and Consultant. She specializes in data analysis, strategy and business development, and cost optimization.

Aybüke Şahin is a fourth year Industrial Engineering student at Antalya Bilim University . She works part-time at the Institute of Graduate Education and Continuing Education Center at Antalya Bilim University. Additionally, she provides mathematics tutoring for those in need. She is also a member of the INDEN community at the university.

Semail Ülgen is an Associate Professor and Chair of Industrial Engineering Department at Antalya Bilim University, Antalya, Turkey. She earned B.S. in Mathematics from Bilkent University of Faculty of Science, Turkey, Masters and PhD in Mathematics from Purdue University, West Lafayette, IN, USA. She has published journal and conference papers. She had worked as a professor at the University of Mississippi, Oxford, MS, USA, at Grand Valley State University, Allendale, MI, USA, at Northwestern University, IL, USA and at Indiana University, Bloomington, IN, USA. Dr. Ülgen was a recipient of the Young Scientist Award for Turkish American Scientists and Scholars Association (USA) in 2006. Her research interests include Finsler Geometry; Applications to Mathematical Physics, Stochastic Processes and its Applications. She is member of IEOM, AMS, Turkish Mathematical Society. She owns a research and trade company (INNOSU) on water efficiency in agriculture and industry.