

# **Redesigning the Material Handling System for a Medical Warehouse**

**Wafa Murad Al Balushi**

Department of Operations Management and Business Statistics  
College of Economics and Political Science  
Sultan Qaboos University  
Sultanate of Oman

## **Abstract**

This research aims to redesign a medical warehouse's material handling system (MHS) by applying Data Envelopment Analysis (DEA). Less research was done to select the appropriate material handling system for medical warehouses. The MHS in the Sultan Qaboos University medical warehouse is evaluated through the material handling equipment (MHE) currently used over different warehouse sections. A list of MHE types most relevant to the ongoing warehouse operations are selected for further evaluation. A market investigation is conducted for each MHE type to determine the specifications of the alternative MHE models offered by different manufacturers and vendors. The data collected for alternative commercial MHE models are employed to rank each list of MHE types separately. In the next stage, the best MHE are ranked using the benchmarking power. The MHS is built as a result of possible combinations of selected commercial MHE models for the required MHE types.

## **Keywords**

Material Handling Equipment (MHE), Material Handling System (MHS), Medical Warehouse, Data Envelopment Analysis (DEA)