

Assessing Lean Manufacturing Implementation across Saudi Arabia's Factories Using Rapid Plant Assessment

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Abstract

Implementing lean manufacturing practices is crucial for improving operational efficiencies in diverse industries. The primary objective is to comprehensively analyze the implementation of lean principles within these manufacturing facilities. This study employs the Rapid Plant Assessment (RPA) method to evaluate the strengths and weaknesses of operational processes. Conducting extensive visits to various KSA factories, this research assesses key aspects including customer satisfaction, safety standards, visual management, teamwork, equipment maintenance, supply chain integration, and commitment to quality. The findings reveal consistent above-average customer satisfaction and commendable safety standards across all factories. However, notable variations exist in teamwork and equipment maintenance practices among these facilities. The study highlights the necessity for targeted improvements in visual management, supply chain integration, and standardized practices to bolster operational efficiencies and uphold quality standards within Saudi Arabia's manufacturing sector.

Keywords

Lean Manufacturing, Rapid Plant Assessment, Saudi Arabia, Operational efficiency and Management.

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Biographies

Eman Mastour Alqarni is a senior Industrial Engineering student, who demonstrates a profound interest in Supply Chain Management during her undergraduate studies. Focused on understanding and refining supply chain operations, Eman exhibits her commitment through coursework and extracurricular activities dedicated to streamlining logistical processes and enhancing efficiency within supply chains. In addition, Eman currently serves as a Production Engineering Specialist at Albustan, leveraging her academic knowledge in practical scenarios to further her expertise in the field of Industrial Engineering.

Leen Ahmad AlBinAli is a senior Industrial Engineering student, who showcases a strong dedication to organizational improvement. Currently employed as a Production Engineering Specialist at Albustan, Leen's academic pursuits harmonize with her professional aspirations. Her commitment lies in exploring Industrial Engineering

methodologies and frameworks to enhance organizational effectiveness and refine processes, aiming to leverage these principles for fostering innovation and augmenting overall organizational performance.

Raafat Elshaer is a professor in the Industrial Engineering Department, College of Engineering, King Khalid University; Abha, Saudi Arabia. He received his B.S. degree in Production Engineering from the Faculty of Engineering, Helwan University, Egypt, in 1996, his M.Sc. degree in Industrial Engineering from the Faculty of Engineering, Zagazig University, Egypt, in 2004, and his Ph.D. in Industrial Engineering from the Faculty of Engineering, Zagazig University in 2009 as a joint program between Zagazig University and Rutgers University, USA. He has published many journal and conference papers. His research interests include optimization, scheduling, project management, earned value management, supply chain management, and others.