

SUSTAINING FACTORS FOR LEAN  
MANUFACTURING EXCELLENCE:  
AN EXPLANATORY MIXED METHODS  
STUDY

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DOCTOR OF PHILOSOPHY

UNIVERSITI MALAYSIA PAHANG

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We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Doctor of Philosophy



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## ABSTRAK

Dalam pasaran yang mencabar hari ini, industri menghadapi beberapa isu berkaitan kualiti, fleksibiliti, kos, dan produktiviti. Industri pembuatan harus cekap dengan memaksimumkan nilai dan mengurangkan aktiviti pembaziran untuk terus berdaya saing. Oleh itu, sistem produksi kejut perlu diterapkan oleh pengeluar industri untuk terus bertahan di pasaran yang kompetitif pada masa kini. Walau bagaimanapun, angka menunjukkan tidak semua pengeluar berjaya mengekalkan sistem produksi kejut untuk memastikan peningkatan prestasi organisasi. Kajian ini menggunakan kaedah campuran penerangan berjujukan bertujuan untuk menyiasat faktor-faktor pengekalaksanaan pelaksanaan sistem produksi kejut oleh industri pengeluar diskrit berskala sederhana dan besar di Malaysia, dan pada masa yang sama meneliti peranan kematangan sistem produksi kejut dalam memperkuat kesan pelaksanaannya terhadap kecemerlangan pembuatan. Dapatan daripada analisis kuantitatif dan kualitatif menyimpulkan bahawa, pengurusan, budaya, pengetahuan, dan pembekal mengukuhkan pelaksanaan sistem produksi kejut, namun pengurusan sumber tidak mengukuhkan pelaksanaan sistem ini. Dapatan kajian juga menyimpulkan bahawa pelaksanaan sistem produksi kejut tidak mempunyai kesan langsung untuk mengurangkan kos pengeluaran, namun kesannya memberi impak positif jika pelaksanaan sistem produksi kejut adalah matang. Kajian ini diharapkan dapat memperluas sempadan ilmu pengetahuan sedia ada dan memberi pandangan dan maklumat kepada pengamal industri dalam merangka strategi bagi mengekalkan pelaksanaan sistem produksi kejut dan meningkatkan kecemerlangan industri pembuatan. Penyelidik masa hadapan disarankan untuk mengkaji faktor teknologi, integrasi sistem pengurusan, dan keterlibatan dalam penyelidikan dan pembangunan sebagai faktor pengekalaksanaan untuk pelaksanaan sistem produksi kejut.

## **ABSTRACT**

In today's market, manufacturers face challenges in quality, flexibility, costs, and productivity. To stay competitive, the manufacturing industry must enhance processes to maximize value and reduce waste. Therefore, lean manufacturing implementation is crucial for survival in today's competitive market. However, figures indicate that not all manufacturers have effectively implemented lean practices to improve their organizational performance. This sequential explanatory mixed methods study aims at investigating the sustaining factors of lean manufacturing implementation among medium and large discrete manufacturers in Malaysia while scrutinizing the role of manufacturing maturity in strengthening the effects of lean manufacturing implementation on manufacturing excellence. The result interpretation from quantitative and qualitative concluded that lean knowledge management, lean culture, lean leadership, lean supplier management strengthen lean manufacturing implementation, while lean resource management does not strengthen its implementation. The results indicate that initially, lean manufacturing implementation does not have a direct impact on reducing production costs. However, the effects become significant when the implementation mature along the learning curve. This study is hoped to expand the boundary of the existing literature and contribute to the body of knowledge while providing insights to practitioners in tailoring strategies to sustain lean manufacturing implementation and leverage their manufacturing excellence. As a recommendation for future researchers, it is suggested to investigate lean technology, integration of management systems, and research and development involvement as sustaining factors for lean manufacturing implementation.

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