

Smart factory governance for manufacturing SME a roadmap and practices in response to industrial 4.0

Abstract

Malaysia is heading into a new era of digital transformation and automation. An innovative digital system enables to streamline the production of goods. In general, the Ministry of International Trade and Industry (MITI) has constructed a National Policy for Industrial Revolution 4.0. It encourages innovation to enhance its productivity and sustainability. In line with that, Malaysia's government introduced a smart factory to the manufacturing practices, specifically manufacturing SMEs. The Industrial 4.0 standards including highly agile, efficient and automated production lines integrated into technological procedures. However, the smart factory operates in a highly digitised environment involved in Big Data analysis, emphasising governance, risk management, and compliance. One of the significant issues faced within a smart factory includes the cost and scale to suit the technology used. Also, issues related to technological complexity always creating uncertainty in the business case. It hinders the decision-making process in the case of cost data overflow. Thus, the smart factory needs smart governance to assist in its decision-making. The study primarily investigates emerging critical elements of governance practices, risk management, and compliance that enhance product capacity. Secondly, propose an innovative factory governance model and its impact on Malaysian manufacturing SMEs' cost and production capacity. The study explores governance, risk management, and compliance implemented through the smart factory in manufacturing SME within the lens of qualitative methodology. Simultaneously, the quantitative methodology uses to triangulate by optimising product capacity using different evaluation methods. Therefore, this study addresses the gaps by proposing a new smart factory governance model to fill the gaps in achieving the National Policy on Industrial 4.0.

Keywords

Capacity; Governance; Product; Smart Factory Governance; SME