

An Empirical Analysis of motivation and challengers of Industry 4.0 Adoption in Malaysian ICT SMEs

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Abstract

Adoption of Industry 4.0 (IR 4.0) technologies by Malaysian Information and Communication Technology (ICT) small and medium-sized organizations (SMEs) is becoming increasingly important in facilitating digital transformation and long-term economic viability. Adoption in the SME service sector is still uneven despite significant national initiatives encouraging digitalization. 50 managerial-level respondents from ICT SMEs that have implemented at least one IR 4.0 technology were given an online survey as part of a quantitative study design. Descriptive statistics were used to analyze the gathered data to determine adoption trends, important factors, and significant challenges. The results show that the main motivation of IR 4.0 adoption are increased time-to-market, cost savings, customer requirements, and competitive pressure. The findings also show differences in company size, medium-sized enterprises show more advanced and integrated adoption of IR 4.0 technologies, especially in big data analytics and artificial intelligence, whereas micro enterprises concentrate on basic technologies like cloud computing and cybersecurity. The main challengers were found to be low strategy awareness, lack of staff knowledge, and ongoing employee education. These results emphasize how crucial strategic alignment and human capital development are to facilitating successful digital transformation. Policymakers and business professionals can use the study's practical findings to create focused initiatives that increase IR 4.0 adoption and enhance Malaysian ICT SMEs' competitiveness.

Keywords

Industry 4.0, ICT SMEs, digital transformation, technology adoption, Malaysia, human capital, SMEs barriers.