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Readiness assessment model for Sri Lankan apparel industry: Assess current readiness and strategize Industry 4.0 journey

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Sri Lankan apparel industry is the most significant and driving contributor to the country's economy by constituting a large portion of GDP. It has achieved rapid growth rates over the past four decades. In the highly competitive apparel world, manufacturers search solutions for future problems such as worker inadequacy to minimize human intervention to increase productivity. Therefore, there is a need for apparel manufacturers to align value chain operations with the latest technologies. After the first three industrial revolutions, the world is now experiencing the fourth industrial revolution that integrates emerging digital technologies; cyber-physical systems, Internet of Things, big data, simulation, cloud computing and augmented reality. Industry 4.0 enhances process functions by providing real-time visibility for smooth production flow. As an example, machine learning is capable of monitoring critical factors such as machine life to predict the frequency of machine replacement in factories. Before aligning with Industry 4.0, there is an urgent need for assisting companies to improve their capabilities in a standardized, purposeful and sustainable way. Current literature mentions applications of industry 4.0 in the apparel industry but has not assessed readiness to adapt. This research assesses the current readiness of the Sri Lankan apparel industry to adapt industry 4.0 technologies by developing a readiness assessment model based on a systematic review of literature. Eighty-three articles were found with keywords; Industry 4.0 readiness assessment model, cyber-physical system readiness, apparel industry, etc. Forty-six studies were filtered based on relevance and ten existing readiness assessment models were identified. A set of assessment criteria were recognized as compatible with the literature, and the strengths and weaknesses of each readiness model were evaluated systematically. Interviews with industry experts were conducted in order to identify value chain processes in Sri Lankan context. The readiness assessment model comprises readiness dimensions and minimum requirements under each level. The outcome of this study will help industry practitioners in apparel sector to assess the current maturity level and move up the technology ladder while maximizing operational performance. Further, it is suggested to validate this model in Sri Lankan context through a case study approach.

Keywords: Readiness assessment model, Industry 4.0, Sri Lankan apparel industry, Apparel value chain