

Oral presentation: 245

Assessing the applicability of industry 4.0 to optimize new product development process in Sri Lankan apparel industry: a conceptual model

S. G. E. H. Wijewardena*, W. M. S. K. Weerabahu and L. D. J. F. Nanayakkara

Department of Industrial Management, Faculty of Science, University of Kelaniya, Sri Lanka
*eranganguli@gmail.com

Apparel and textile export industry is the highest export income earner in Sri Lanka with the highest number of employees. It has grown rapidly during the past few decades while attracting many customers around the globe. Although the isolated geographical area is negatively affecting the lead time, Sri Lanka has built up its brand name of providing superior quality garments to its customers. However, with the fluctuating trends and demands, customers always request shorter lead time for the apparel products. Consequently, most of the Sri Lankan apparel manufacturers have optimized their production processes by implementing different optimization techniques. Whole value chain and decisions such as quality, cost and time are greatly influenced by New Product Development (NPD) processes. Recently, the NPD processes are being adopted in Sri Lankan apparel industry in order to sustain in the competitive global and local market and fulfil customer requirement in an effective manner. However, novel approaches of NPD practices are lacking in Sri Lankan apparel manufacturing industry. Thus, emerging technological trends such as Industry 4.0 can be used in NPD process to optimize the process. This study has been conceptualized to assess the applicability of Industry 4.0 technologies in NPD process through a systematic review of literature. Initially industry 4.0 technologies and applications were identified from the previous studies, then the technologies that are applicable in NPD process in apparel industry were extracted. After the quality assessment of the studies, data extraction, monitoring and synthesis were done. Then the relevance of the technology for different NPD functions was critically evaluated and a conceptual model was developed. In conclusion, this research highlights the importance of industry 4.0 technology integrated NPD practices. Through the conceptual model, effect on NPD life cycle, internal processes and stake holder integration via industry 4.0 technologies is mainly assessed. Also, this can be defined as a framework to improve NPD process efficiency in apparel industry by collaboration with suppliers, customers and the other stake holders.

Keywords: Apparel industry, Industry 4.0, new product development process, optimization