

Possibility of applying Industry 4.0 as a business process re-engineering tool: Case study from an apparel production plant

H. S. B. Jayatilake*, A. S. Withanaarachchi and Suren Peter

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

The industrial revolution began with the mechanization of the textile industry, followed by the age of mass production and subsequently manufacturing going digital. The world is now gradually moving to the fourth industrial revolution which draws together *Cyber-Physical Systems*, the *Internet of Things* and the *Industrial Internet of Things* along with the concept of “smart factory”. The concept of fourth industrial revolution has originated from countries like Germany as “*Industry 4.0*”, as a government initiative, and from USA as “Industrial Internet Consortium” as an initiative from leading multinational organizations.

This case study is based on real time analysis and the experiences in the operational function of an apparel manufacturing plant in Sri Lanka. The production plant is currently facing serious issues such as labor shortage, high labor turnover and weaknesses in inventory management which required an immediate process re-engineering in order to become viable and sustainable business. The main objective of this case study is to identify the possibility of re-engineering the business process of the production plant by applying the concepts of *Industry 4.0*, rather than depending only on conventional process re-engineering concepts. Implementing smart factory concept in the apparel industry is still an emerging approach in *Industry 4.0* which has been considered in this article as a novel approach.

In order to attain the stated research objectives, a qualitative approach has been adopted in this study. Senior management and selected operational level employees, were interviewed using structured and unstructured questionnaires along with five months of self-observations in the production plant by the authors themselves and a detailed literature survey. The findings indicate that the plant has the necessary features to implement *Industry 4.0*. However, in terms of readiness to implement *Industry 4.0*, the plant is still in the initial stage.

In conclusion, the production plant’s potential to be converted as a smart factory from its current position by resolving the major issues is assessed. It also discusses the capability of *Industry 4.0* to become the new benchmark for smart factories, going beyond the concept of using business process reengineering to align the organization to adapt to the dynamic environmental changes taking place in the world currently.

Keywords: Apparel Industry, Business process re-engineering, Industry 4.0, Smart factory