

Leftover materials and circular economy 4.0: applications and implications

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ABSTRACT

The manufacturing sector continues to expand and appears to be more focused on environmental-based production. There is a need to understand how the manufacturing firms capable of utilising Industry 4.0 technology to improve remanufacturing process efficiency and procurement planning such as leftover materials, return products and scraps. This paper aims to propose the effectiveness of remanufacturing process, which turns waste into value-added products using the circular economy 4.0 approach. Data were collected during the Malaysian restriction of movement order of the COVID-19 pandemic using an online interview with key persons in charge of remanufacturing. The finding shows the circular economy 4.0 fits well to achieve the effectiveness of remanufacturing processes and less labour physical contacts. The proposed framework can help manufacturers empower business sustainability in production and supply chains, leading to firm competitiveness.

KEYWORDS

circular economy; remanufacturing; supply chain; Industry 4.0; COVID-19; value-added product; sustainability.

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