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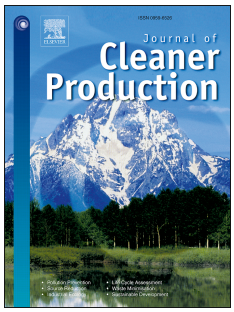

A systematic review of technologies involving eco-innovation for enterprises moving towards sustainability

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A systematic review of technologies involving eco-innovation for enterprises moving towards sustainability

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Abstract: In order to reach the goal of sustainability, eco-innovation has been proposed as an effective mechanism and solution to help enterprises to reduce negative impacts on environment. However, with the advance of technology, the scope of eco-innovation becomes larger and complicated. In the past, very few articles discussed the evolution of technologies involving eco-innovation integratedly and systematically. It is worth to have a systematic review concerning the state of the art. The purpose of this study was to provide a holistic view to see the progression of the technologies which pushed forward the realization of sustainability in the past 2-3 decades. In this study, 55 research review papers were initially selected and analyzed to identify the technologies involving eco-innovation. Four technology-based eco-innovation dimensions were defined (green/sustainable product development dimension, business model integration dimension, green marketing and sustainable consumption dimension, and hybrid model construction and optimization dimension). Five case studies in the prior research were re-evaluated based on the identified technology-based eco-innovation dimensions. The results showed that most companies performed the best for the green/sustainable product development dimension. New technology and directions are needed for enterprises to strengthen the other three dimensions. Therefore, additional 76 papers were analyzed to provide suggestions concerning future technology directions for enterprises moving towards sustainability.

Keywords: Eco-innovation, sustainability, review, technology.

1. Introduction

According to WWF (2016), the world is using the equivalent of 1.6 planets to support human activities. The finding highlights that there is a huge gap between natural resource supply and human demand. This also indicates that human beings need to live a more sustainable lifestyle (Mont et al., 2014), to ensure a sustainable living environment.

1.1 Sustainability

The Oxford Dictionary defines sustainability as “avoidance of the depletion of natural resources in order to maintain an ecological balance.” To solve the problems of