

AI-Driven Green Entrepreneurship: The Case of Carbon Clean and Prospects for Algerian Start-Ups

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Abstract:

This study aims to highlight the role of artificial intelligence (AI) in supporting green entrepreneurship by analyzing the experience of Carbon Clean, a UK-based company recognized globally for developing advanced carbon dioxide capture solutions from industrial installations, and by exploring how this model can benefit Algerian start-ups. The research employs a descriptive-analytical approach, supported by case study and comparative methods, to examine the integration of AI into emission capture processes and its implications for operational and environmental performance; while also analyzing the Algerian context and assessing the feasibility of adapting this model to promote local sustainable development.

The findings reveal that Carbon Clean successfully integrates carbon capture technologies with machine learning algorithms, reducing operational costs, enhancing capture efficiency, and achieving both economic and environmental effectiveness; which has facilitated its international expansion. In contrast, Algerian start-ups, particularly those active in energy, recycling, and environmental innovation, still face structural challenges despite recent green economy and digital innovation initiatives. These include limited access to green finance, weak ecosystem coordination, and insufficient advanced technological infrastructure and research partnerships. The study concludes that adapting this model requires stronger university-industry collaboration, dedicated green AI financing mechanisms, and supportive regulatory and fiscal policies.

Keywords: Green Entrepreneurship ; Artificial Intelligence ; Start-ups ; Carbon Clean UK ; Algeria

Jel Classification Codes : M14 ; M31

