Resilience & Sustainable Development Model through De-Carbonisation Process using an Improved Digital Twin Approach

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Abstract:

At the backdrop of the COP-28 summit on Green House Gases (GHG) emissions, the paper explores the supply chain risk and resilience of its supplier-stakeholder logistical node using AHP, FMEA & SERM frameworks. Utilising case-based research on a hypothetical global cluster based on a Canadian Aluminium Corporation with a specific impetus in the Quebec province, the research lays a foundation for normative theories using the Kraljic Matrix and above frameworks. The research establishes factors for strategic sustainable procurement using an improved digital twin approach in the supplier-stakeholder node using linear programming and multi-variate equations. In addition to the widespread interest in addressing GHG emissions, the research also focuses on an empirical carbon management and reporting tool using a strategic data hub to facilitate this process in accordance with the government and UN climate offset program.

Keywords:

Supply Chain Resilience, IMO, Sustainable Fuel, Sustainable Procurement, Canada.