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Machine Learning Model Applied for SCM Processes to Efficiently Determine Its Impacts on the Environment

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Abstract : This paper aims to investigate the impact of Supply Chain Management (SCM) on the environment by applying a Machine Learning model while pointing out the efficiency of the technology used. The Machine Learning model was used to derive the efficiency and optimization of technology used in SCM and the environmental impact of SCM processes. The model applied is a predictive classification model and was trained firstly to determine which stage of the SCM has more outputs and secondly to demonstrate the efficiency of using advanced technology in SCM instead of recuring to traditional SCM. The outputs are the emissions generated in the environment, the consumption from different steps in the life cycle, the resulting pollutants/wastes emitted, and all the releases to air, land, and water. This manuscript presents an innovative approach to applying advanced technology in SCM and simultaneously studies the efficiency of technology and the SCM's impact on the environment. Identifying the conceptual relationships between SCM practices and their impact on the environment is a new contribution to the research. The authors can take a forward step in developing recent studies in SCM and its effects on the environment by applying technology.

Keywords : machine-learning model in SCM, SCM processes, SCM and the environmental impact, technology in SCM
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