



# A Multi-Stakeholder Involved Effective E-Waste Management in Manufacturing Recycled Electronic Products Using Game Theory

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Received: 21 September 2020 / Accepted: 24 March 2021  
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## Abstract

Globally, electronic waste (E-Waste) has grown as a severe concern owing to the increasing quantity of waste and the toxic it. E-Waste includes plastics and metals, which are highly recyclable but which, if not adequately managed, are concerned about the health and the environment by plastic waste and heavy metal traces of additives and chemicals. This article investigates the modeling of game theory for E-Waste. It presents a framework to analyze various stakeholders' behavior in the manufacture of electronic products using recycled (ERM) and non-recycled (ENRM) materials, understanding the importance of the actual cost variation. This study suggested a framework to decide which Game Plan is best-suited to gain each stakeholder's leading company's profit allocation. Data demonstrate that ERM can be the best choice for manufacturers and customers and recommend applying return schemes to consumers with specific incentives and penalties to those who do not comply with the agreed E-Waste management process could be of great help to discourage computer waste disposal on land.

**Keywords** E-Waste management · Game theory · Multi-stakeholder · Recycle · Nash equilibrium game plan

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