

- [6] H. C. Zhang, T. C. Kuo, H. Lu, and S. Huang, "Environmentally conscious design and manufacturing: A state-of-the-art survey," *J. Manuf. Syst.*, vol. 16, pp. 352–371, 1997.
- [7] H. Metta and F. Badurdeen, "Sustainable product and supply chain design: Optimization and multi life-cycle analysis," presented at the 44th CIRP Int. Conf. Manuf. Syst., Madison, WI, Jun. 2011.
- [8] X. Lv and X. Ye, "Research on sustainable design based on green product life cycle," *International Conference on Advanced Technology of Design and Manufacture*, pp. 259-262, 2010
- [9] K. Joshi, A. Venkatachalam, I.H. Jaafar, and I. S. Jawahir, "A new methodology for transforming 3R concept into 6R concept for improved product sustainability," presented at the Global Conf. Sustainab. Prod. Dev. Life Cycle Eng., Sao Paulo, Brazil, Oct. 2006.
- [10] W. Wang and M. M. Tseng. "Economic analysis of product end-of-life strategies to achieve design for sustainable manufacturing," *ICRM2010-The 5th Conference on Green Manufacturing*, Ningbo, China, pp. 268-272, 2010
- [11] Kerr, W. and Ryan, C. "Eco-efficiency gains from remanufacturing: case study of photocopier remanufacturing at Fuji Xerox Australia", *Journal of Cleaner Production*, Vol. 9, pp. 75-81, 2001.

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