

Warranty Optimization for Remanufactured Products

Wilkistar Otieno and Yuxi Liu

Department of Industrial and Manufacturing Engineering
University of Wisconsin-Milwaukee
Milwaukee, WI, USA
otieno@uwm.edu, yuxiliu@uwm.edu

Abstract

This study considers a remanufactured electrical product under a tiered warranty policy. Warranty is key in ensuring a good manufacturer—consumer relationship. Manufacturers hope to minimize warranty costs while consumers believe that good warranty promises better product quality and reliability. This paper presents an optimal warranty period from the perspective of a manufacturer to maximize the total expected profits, while ensuring sustained consumer relation. We use real data from a local company to provide a numerical example.

Keywords

Reliability, warranty, optimization.

Biography

Wilkistar Otieno is an Assistant Professor of Industrial and Manufacturing Engineering at the University of Wisconsin-Milwaukee. She holds a Doctoral degree in Industrial Engineering and Masters in Statistics degree both from the University of South Florida. She earned a Bachelor's degree in Mechanical and Production Engineering from, Moi University in Eldoret, Kenya. Her research interests include sustainable manufacturing (remanufacturing), sustainable energy (solar power generation systems performance analysis), sustainable water systems reliability and overall systems optimization. She has interests in Science Technology Engineering and Math education, particularly for female and underrepresented minority students. She is a member of IIE, IEEE, INFORMS, SWE and QSR.

Yuxi Liu Holds a Master's and a B.S. degree in Industrial and Manufacturing Engineering both from the University of Wisconsin-Milwaukee Florida. His research interests include optimization, reliability engineering, warranty assignment and quality control. He is a member of IIE and INFORMS.