Proceedings of the 11th North American Conference on Industrial Engineering and Operations Management
Milwaukee, Wisconsin., USA, June 9-11, 2026

Proceedings of the International Conference on Industrial Engineering and Operations Management

Publisher: IEOM Society International, USA DOI: 10.46254/NA11.20260407
Published: June 9, 2026

The Distortion of Sustainability: A Mixed-Methods Analysis of the Triple Bottom Line on Social Media

Madeliene Philippe, John Nagel, Jose de Ondarza and Johnson Adebayo Fadeyi
Department of Industrial and Systems Engineering,
University at Buffalo
USA
mphilipp@buffalo.edu; johnnage@buffalo.edu; josedeon@buffalo.edu; jfadeyi@buffalo.edu

Abstract

Growing environmental awareness has fundamentally reshaped consumer behavior, turning sustainability into a core competitive advantage for modern enterprises. However, the mechanism by which social media influences how consumers perceive and evaluate sustainable products remains under-examined. This study identifies and evaluates the representation of sustainable product features across social media platforms. Utilizing a mixed-methods approach combining Fuzzy Inference Systems (FIS) and Conventional Content Analysis (CCA), we analyzed hashtag frequencies across social media to quantify the digital visibility of the three pillars of sustainability: environmental, social, and economic. The empirical results reveal a severe structural imbalance: social media representation overwhelmingly favors the environmental pillar, while the economic pillar is critically underrepresented. The paper concludes that the public digital discourse distorts the holistic definition of sustainability, leading to a superficial consumer understanding that ultimately threatens the market viability of authentic, triple-bottom-line sustainable products.

Keywords
Sustainable Products, Consumer Behavior, Social Media Impact, Triple Bottom Line, Fuzzy Inference, Content Analysis.