

Towards a Predictive Durability Index for Footwear Through Advanced Modelling in Life Cycle Assessment

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ABSTRACT:

Towards a predictive durability index for footwear through advanced modelling in Life Cycle Assessment (LCA), the critical role of durability in improving the accuracy of environmental impact assessments is addressed. Traditional LCA approaches often fail to consider durability comprehensively, resulting in incomplete evaluations when comparing high-durability products to lower-quality alternatives.

In this study, a **specialized Footwear Durability Index** has been developed using advanced survival analysis models that capture diverse wear patterns and failure modes. By integrating recent data and predictive modelling techniques, this index enables a precise characterization of footwear durability. The result is a **dynamic tool** that enhances LCA precision and aligns with the Digital Product Passport (DPP) requirements, underscoring the importance of durability as a key sustainability metric.

This presentation will focus on the **methodology** of predictive durability models, their implications for environmental assessment, and how this innovative approach can foster sustainable practices in the footwear industry.