Design Principles for IT-Driven Circular Economy Initiatives

About

This study aims to create clear guidelines for businesses looking to implement IT-supported circular economy (CE) projects. Using a mixed-methods approach that included a literature review, text analysis, and a workshop with industry practitioners, the researchers developed a set of core design principles.

Problem

While the circular economy is a popular concept, its broad and often vague definitions make it difficult for companies to implement practical, IT-driven initiatives. This lack of conceptual clarity hinders organizations from identifying effective strategies, preventing them from fully realizing the potential of IT to advance sustainability goals.

Study Outcome

- DP1: Regulatory and Goal Alignment for IT-Driven CE Initiatives: This principle ensures that projects comply with regulations and balance economic goals with clear ecological and social objectives.
- DP2: Digital Foundations for a Holistic CE Management: This principle focuses on leveraging existing technology, systematically evaluating circular business models, and mapping stakeholders and data to close information gaps across the value chain.
- DP3: Implementation of CE through IT-Enabled Processes: This principle guides companies to adopt comprehensive strategies covering the entire product lifecycle and to develop concrete implementation plans that engage all stakeholders.

Keywords

Circular Economy • Design Principles • CE Principles • Sustainability • Mixed-Methods