

From Sketch to Shelf: How Technology Enables Sustainable Fashion



1. Design

“The clothing industry is ranked the **4th highest** for its negative impact on the environment and climate change, and the **3rd highest** for water and land use.”

Product Lifecycle Management (PLM)

- » Reduce physical samples with digital sampling & 3D prototyping
- » Enable sustainable design by taking a design-for-circularity approach
- » Promote responsible design choices by building a sustainable material library

2. Sourcing

“Up to **80%** of a product’s environmental impact is determined at the design phase — mostly through materials and dyes.”

PLM + Enterprise Resource Planning (ERP)

- » Partner with ethical suppliers using a preferred supplier database
- » Validate material source with end-to-end traceability
- » Reduce emissions with optimized, sustainable transportation planning

3. Production

“Only **6% of brands** have published plans to support upstream suppliers affected by climate change.”

ERP + Shop Floor Control (SFC)

- » Reduce energy usage with labor and machine-level efficiency tracking
- » Minimize waste and rework with real-time quality control and alerts
- » Prevent overproduction with right-sized batches and accurate WIP monitoring

4. Distribution

“The textile industry today accounts for up to **10% of global CO₂e emissions**.”

ERP + Transport Management System (TMS)

- » Lower emissions with optimized routes and carrier selection
- » Prevent over/understocking with real-time inventory visibility
- » Maximize shipping efficiency through load optimization and consolidation



“Returns and overstock are a **growing environmental cost** in eCommerce, prompting a push for smarter inventory management and route optimization.”

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