

NEEDLE FELTING

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KEY FINDINGS

This case study demonstrates that artisanal needle-felting technology can successfully remanufacture locally sourced textile waste into a durable nonwoven fabric. Accessory products were subsequently developed by the community artisans with design support from the Craft and Design Institute (CDI). These products were presented and sold at national trade exhibitions including SARCD and Decorex Cape Town, attracting repeat orders and early wholesale interest. The pilot confirms both technical feasibility and emerging market demand for recycled textile products. While the current demonstration remains pre-commercial, it provides strong evidence that distributed, community-scale replication could play a key role in localising textile waste recycling. Future work should focus on strengthening enabling conditions such as logistics, finance, and market development to ensure that small-scale recyclers can convert technical success into sustainable livelihoods.

INTRODUCTION

South Africa's textile sector continues to generate significant volumes of pre-consumer textile waste most of which are destined for landfill. These materials hold high potential for reuse and job creation if transformed into new products.

The “waste-to-wealth” narrative positions this transformation as a livelihood opportunity. This project therefore tested whether embedding a crafter and recycling technology at the point of textile waste generation could produce both environmental and socio-economic benefit. The study explored a low-cost, low-energy pathway using artisanal needle-felting to remanufacture textile waste into new nonwoven materials for accessory and homeware applications.

FIELD STUDY DESIGN

This case study formed part of the DSI Circular Economy Demonstration Fund, focusing on derisking and scaling circular economy technologies for socio-economic impact. The fieldwork explored the potential of embedding a crafter directly at a textile waste source to recycle offcuts into new products using an artisanal needle-felting loom.

The case study was implemented in partnership with an established enterprise development organisation in the Clothing, Textiles, Footwear and Leather (CTFL) sector. This collaboration ensured that the assessment

reflected real-world enterprise dynamics linking technical feasibility with the lived experience of production, sales, and resource constraints. By situating crafters at the point of waste generation, the project demonstrated how localised recycling can simultaneously reduce landfill waste and stimulate community-based creative economic activity. The findings underscore that socio-technical integration, not technology alone, determines the pathway to scale and sustained impact.

MAIN RESULTS

Technical derisking achieved

The pilot confirmed that low-cost needle-felting equipment can effectively transform most forms of pre and postconsumer textile waste into a usable nonwoven fabric suitable for consumer products. Needle-felting is a mature, accessible technology already established in the global industry. Artisanal material strength, handling, and appearance, while not meeting all virgin textile standards, met artisanal expectations for accessory applications, indicating readiness for wider artisan adoption.

Market interest validated

Products derived from the recycled textile received positive feedback at SARCD and Decorex Cape Town, leading to repeat orders and wholesale enquiries. Although still modest, this demand shows encouraging

consumer openness to locally recycled materials and signals a foundation for future brand development.

Community-based production viable in principle

The pilot illustrated that when technical capability is paired with design mentorship and enterprise support, local recyclers can generate products that appeal to both aesthetic and sustainability-conscious markets.

Craft revival and cultural relevance

Needle-felting represents one of several techniques available to revalorise textile waste. Its adoption intersects with the growing revival of “heritage crafts” such as crochet and weaving. These approaches embody inclusive circularity by combining technical recycling knowledge with traditional cultural and creative livelihoods that resonate strongly with community artisans.

Scaling through distributed micro-enterprises

The most promising pathway for growth is replication through multiple smaller community implementations. This would allow local recycling of textile waste streams, reduce waste transport costs, and stimulate distributed employment.

Enterprise development and financial scaffolding are key to economic viability

The pilot illustrated that artisans thrive when technical innovation is supported by enterprise incubation and income stability. Structured mentoring, stipends, and value chain support enable artisans to refine products, engage with buyers, and test pricing models without the immediate pressure of profit recovery. This finding confirms that socio-economic scaffolding supporting technology enablement determines whether local recycling can mature into viable livelihood opportunities.

Product and standards development

Product acceptance in the circular textile economy depends on consistent quality, standards compliance, and consumer education. The project showed that recycled textiles can meet market expectations but require an extended period of refinement and testing

to build trust. A product and standards development roadmap is thus essential for scaling production, ensuring durability, and aligning with formal retail and export markets requirements.

Local feedstock logistics is a critical enabler

The project confirmed that reliable access to local textile waste streams is essential for small-scale recyclers. Coordinated collection and sorting at source not only improves material consistency but significantly reduces transport and input costs.



Figure 1: Example of waste to value product development. Needle felting with sock waste

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