

Learnings from ID Based Sorting

The fashion and textile industry generates an estimated 6M tonnes of post-consumer textiles from residential sources every year.¹ Reuse and recycling are critical in order to keep valuable textile resources from becoming waste. Augmented sorting technologies are an important addition to the circular textile industry, as they can increase the economic value of sorting post-consumer textiles for reuse and recycling. circular.fashion's Intelligent Sorting Stations, together with RFID and NFC enabled circularity.IDs, are a prime example of this innovation in action, and recent testing at TEXAID's largest sorting plant at the

ReSales subsidiary demonstrates the potential value for Digital Product Passports and augmented sorting.

This pilot was a test within the CIRTEX project, funded through the KMU Innovativ funding programme from the German Federal Ministry of Education and Research. The primary goal was to equip product return channels used by consumers with intelligent sorting capabilities. The secondary goal was to increase the speed, value and consistency of fine sorting.



Fig.1 - Processing textiles at an Intelligent Sorting Station at TEXAID.

1 Scaling textile recycling in Europe, McKinsey (2022)

Intelligent Sorting Stations were set up and tested within TEXAID's sorting operations. The results from this pilot indicate that by using ID based sorting, fine sorting decisions can increase in reliability and consistency. Additionally, the team sees a potential for ID based sorting to reduce training costs for new employees, maximizing the value of their sorting decisions and increasing the consistency of these decisions, as well.

Experienced sorters with different specialized knowledge completed sorting tests, and the results below show an average of their non-ID based sorting decisions compared to an average of their ID based sorting decisions across 6 generic sorting categories.

- Reuse Quality 1
- Reuse Quality 2
- Reuse Quality 3
- Recycling Quality 1
- Recycling Quality 2
- Waste

Testing materials were specifically gathered for this test. The share allocated to each category below is not representative of the actual materials in TEXAID's production.

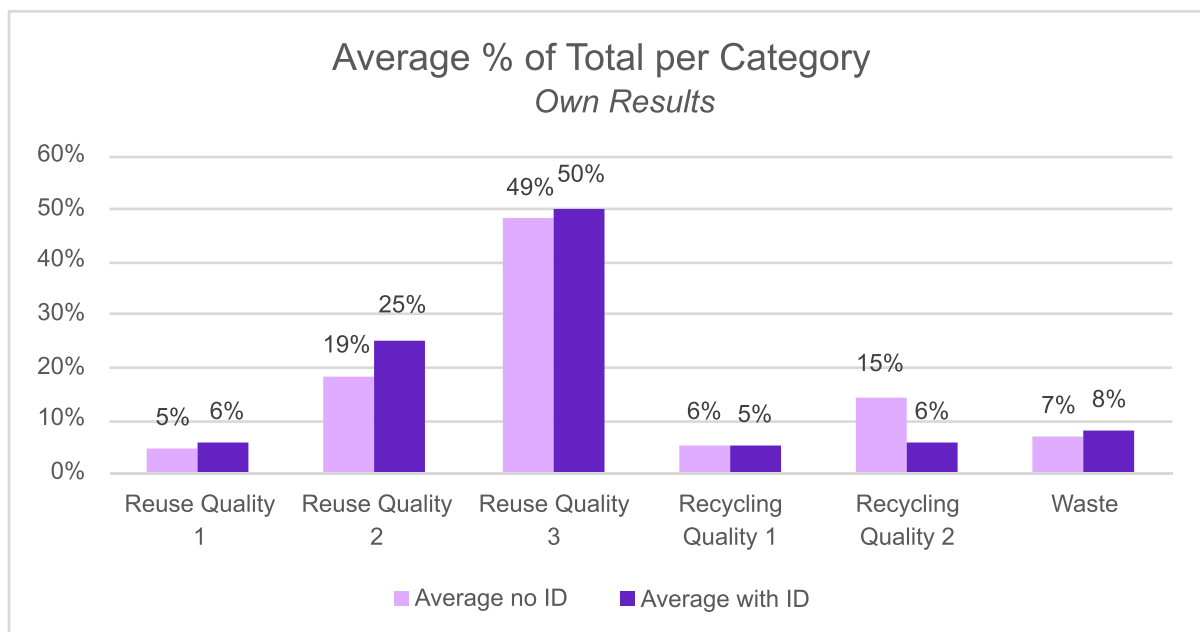


Fig. 2 - Change in sorting decisions made with and without ID based sorting

When comparing the sorting without IDs and with IDs, we see that the number of textiles sorted into Recycling Quality 2 decreased by 9% on average. Reuse Quality 2 increased by 6%, and Reuse Quality 1 and Reuse Quality 3 each increased by 1%. ID-based sorting can be a very helpful tool for manual sorters, supporting them in their decision making. Although the decision making of a specific quality of a piece of clothing and textiles needs highly skilled and experienced workers.

In further support of the team's conclusions, sorters who tested ID based sorting for the fine sorting process gave the Intelligent Sorting Station a helpfulness score of 8 or 9 (out of 10). The sorters gave indications that

further information on the textiles and clothing, can support their decision making of identifying reusable textiles or the material for recycling. Material information allows a quick identification of the garment's composition, which helps enable textile-to-textile recycling.

The circular.fashion Intelligent Sorting Stations are now installed in the TEXAID sorting facility and are in operation. Brands and retailers have the ability to adopt the circularity.ID as a Digital Product Passport and have textile products returned to TEXAID for ID based sorting.

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